

VIRGINIA JOURNAL OF SCIENCE
Special Centennial Issue



**Commemorating the Centennial
of the Virginia Academy of Science**

**at its 101st Annual Meeting
May 25-26, 2023**

William & Mary, Williamsburg, Virginia

OFFICIAL PUBLICATION OF THE VIRGINIA ACADEMY OF SCIENCE

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Special Centennial Issue – 1923-2023 of the *Virginia Journal of Science*

Table of Contents

Journal Cover

Table of Contents

Section 1: Introduction to the Centennial

The First Annual Meeting of the Virginia Academy of Science - April 26, 1923

Introduction to the Special Centennial Issue

by Woodward S. Bousquet and Christopher J. Osgood

Proclamation and Congratulations

- Proclamation by the Virginia General Assembly Senate
- Letter from Governor Glenn Youngkin
- Letter from Senator Mark Warner
- Remarks from Senator Tim Kaine

Selected Highlights of the First Hundred Years of the Virginia Academy of Science

by the Ad Hoc Committee on Publicity, 2019-2020

Section 2: The Virginia Academy of Science – Considering its History and its Roles

Reflections about the Academy and its Centennial

by members of the Virginia Academy of Science
compiled by Marco Aldi, and edited by Woodward S. Bousquet

Historical Trends in the Astronomy, Math, and Physics Section of the Virginia Academy of Science

by Joseph Daniel Rudmin

Some Notable Women Botanists in the VAS: Their Roles in Supporting the Development of the Modern *Flora of Virginia*

by Marion Blois Lobstein

**The Virginia Academy of Science: A Scholarly Forum over Decades for
Students of a Plant Ecologist**
by Stewart Ware

**Section 3: The Centennial Annual Meeting of the Virginia Academy of Science - May
25-26, 2023**

101st VAS Annual Meeting Template

VAS Annual Meetings Description

VAS President's Welcome
by Deborah Neely-Fisher

About William & Mary (including photos of campus)

VAS Annual Meeting Program Committee

Schedule of Events (including photos of events)

**Sydney S. Negus Memorial Lecture: John Clayton (as portrayed by Richard
Cheatham) (including photos of session)**

**Virginia Academy of Science at 100: A Presentation Given to the Chemistry
Section of the Virginia Academy of Science**
by Thomas C. DeVore

**Attendance at Virginia Academy of Science Meetings: A Report of the Panel
Discussion Held by the Chemistry Section of the Virginia Academy of Science**
by Thomas C. DeVore

Recognition of Carolyn Conway by VAS Academy Council, May 26, 2023

Section 4: About the Virginia Academy of Science

Presidents of the Virginia Academy of Science, 1923-2023
compiled by Woodward S. Bousquet

Fellows of the Virginia Academy of Science
by Darcy P. Mays III

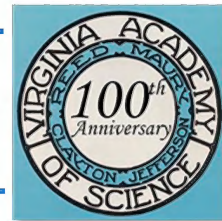
Virginia Academy of Science Officers, 2022-2023

Virginia Junior Academy of Science Officers, 2022-2023

The First Annual Meeting of the Virginia Academy of Science



Scientists and science educators meet at the College of William and Mary for the final meeting of the Association of Virginia Biologists and the first Virginia Academy of Science meeting, on April 26, 1923.



Introduction to the Special Centennial Issue

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This special issue of the *Virginia Journal of Science* (VJS) is dedicated to the 2023 Centennial of the Virginia Academy of Science (VAS). It includes congratulations from Commonwealth leaders, a proclamation by the Virginia General Assembly Senate, Academy members' personal reflections, several historical papers and summaries, and portions of the program for the May 25-26, 2023 Annual Meeting in Williamsburg on the William & Mary campus.

The Academy and the *Journal*

Given the historical focus of this *Journal* issue, it is appropriate to consider the founding of the *Virginia Journal of Science* itself in 1939-1940. Prior to that time, the Academy had produced several separate periodical publications: the annual *Academy Program* and subsequent *Proceedings*; the *Bulletin of the Virginia Section of the American Chemical Society*; and *Claytonia*, the bimonthly report of the VAS Committee on Flora that was initiated in 1934. Insufficient interest in discipline-specific bulletins, and financial stringencies stemming from the Great Depression and preparations for the coming world war, caused the Academy to form a Publication Committee in 1939 to examine the organization's periodicals. The result was to consolidate VAS publications into the *Virginia Journal of Science*. This new endeavor was intended as a multidisciplinary periodical to "represent Virginia science" and "become the local organ of the various scientific groups in the State ... serv[ing] as an integrating influence on science in Virginia" (Webb 2001 35-36, 69-71).

Those objectives aptly reflect the original aims of the scientists and science educators who gathered at the College of William and Mary on April 23, 1923 to create the Virginia Academy of Science. On the next day, the 135 charter members of the Academy formalized the new organization's framework by adopting its constitution with a mission statement comprising five purposes:

To promote the development of interest in scientific matters in the State; to provide means for the prompt publication of papers or abstracts; to provide opportunity for increased co-operation and fellowship among its members; to co-operate with other scientific bodies having similar aims; and to render public service in scientific matters. (Proceedings of the Virginia Academy of Science 1923-1924, pp. 4-5).

Although ten decades have passed since that first meeting, Academy members will probably notice the remarkable consistency between our organization's aims today and the purposes that the founders of the Virginia Academy of Science identified in 1923.

Preparing for the Centennial

As the VAS Centennial approached, Associate Executive Officer Carolyn Conway and the Long Range Planning Committee investigated the feasibility of holding the 101st annual meeting in 2023 at the site of the Academy's 1st meeting in 1923: William & Mary. In 2019-2020, the Academy's ad hoc Committee on Publicity developed a calendar of suggested centennial events, prepared recommendations for updating the VAS website, and put together templates for news releases. This committee also expanded and updated the list of Academy accomplishments that had been printed in meeting programs of the VAS and Virginia Junior Academy of Science (VJAS) for more than a decade.

Academy President Michael Wolyniak formed the Centennial Committee in 2020, appointing longtime VAS member Richard Groover as its chair. The committee's responsibilities were to identify, coordinate, and promote ways in which the Virginia Academy of Science might commemorate its history during the 2022-2023 Centennial Year between the Academy's 100th and 101st annual meetings. While suggestions were numerous, the Centennial Committee reminded the VAS membership that those stepping forward with ideas will need to volunteer to carry them to fruition and, as necessary, enlist others to assist.

Planning had begun. However, the years and months leading up to the May 2023 Centennial presented unexpected challenges. The global COVID-19 pandemic caused preK-12 schools, universities, businesses, public facilities, and even state parks to close in mid-March 2020. Both the VAS and VJAS cancelled their 2020 annual meetings. The Executive Committee, Academy Council, and standing committees met virtually. A mixture of online, hybrid, and in-person annual events followed. In 2021, the VAS and

VJAS annual spring meetings occurred online only. The 2021 Fall Undergraduate Research Meeting at Hampden-Sydney College became the first Academy meeting to return to the fully in-person format, and the 2022 fall meeting at Longwood College followed suit. The 2022 VAS Annual Meeting at Liberty University was offered in hybrid format to accommodate lingering concerns about the spread of disease. Meanwhile, the Junior Academy's Annual Research Symposium continued to convene virtually because of concerns expressed to VJAS leaders about school travel restrictions resulting from the pandemic, and from budgetary constraints that made it difficult for some school systems to participate in face-to-face meetings.

These were not the only circumstances shaping Virginia Academy of Science activities in the early 2020s. Recurring spikes in the incidence of COVID cases, and the emergence of particularly virulent strains of influenza and other diseases, created uncertainties in scheduling university venues for VAS fall and spring meetings. Concerns about communication and coordination of Academy operations during these difficult years led some committee chairs, committee members, and elected VAS officers to resign from leadership positions. New leaders stepped forward, experienced Academy members helped to address needs, and some responsibilities were reassigned, particularly to Executive Officer Philip Sheridan. Surmounting the learning curve took time, and some functions were delayed, yet preparations for the Centennial continued.

The Centennial Year (2022-2023) and the 2023 Annual Meeting

At its online meeting in February 2022, Virginia Flora Committee members discussed papers that Virginia plant specialists might present during the Botany Section session to reflect the Academy's involvement in botanical exploration and research in the state. Out of that meeting grew a motion from the Committee to the Academy Council:

Motion by the Virginia Flora Committee for a Centennial-Related Theme at the 2023 Annual Meeting in Williamsburg:

Since the 2023 Annual Meeting of the Virginia Academy of Science marks the Centennial of our organization, we propose that the Academy adopt the theme, Commemorating Our Centennial, for this historic annual meeting. The Virginia Junior Academy of Science is encouraged to participate as well.

Academy staff, Academy officers, Section program chairs, and Academy members are encouraged to incorporate reflections, histories, panel discussions, and other commemorations of the Academy's first 100 years into the May 2023 meeting program. Logical places in the meeting schedule to include this theme-related content include the one-hour time

block for a featured presentation in each section's program listings and featured plenary speakers. Other times could also be created.

The Academy Council approved the motion at Council's meeting on November 19, 2022. The theme was incorporated into the Call for Paper and Presentation Titles sent to Academy members.

Centennial Year activities and events that occurred prior to the culminating annual meeting in May 2023 included these:

- Promotional video released in November 2022 highlighting accomplishments of the Virginia Academy of Science. Production was overseen by Richard Groover.
- "Selected Highlights of the First Hundred Years....," a revised two-page edition of the list of Academy accomplishments.
- Commemoration hosted by the Science Museum of Virginia at the museum in January 2023. Former presidents Elsa Falls and Woodward Bousquet, and current president Deborah Neely-Fisher, gave remarks.
- Recognition by the Virginia Junior Academy of Science of the founding role of the VAS in 1947 and its continuing sponsorship of the Junior Academy.
- News releases sent to electronic, newspaper, television, and radio news media statewide about centennial events, the Academy's support for Virginia's participation in the Regional Greenhouse Gas (RGGI) initiative, and the 2023 Annual Meeting. Among the results was a feature article in *The Roanoke Times* that described the Academy's involvement in establishing the Virginia State Parks. Land for Fairy Stone State Park – one of the Commonwealth's first six state parks – was donated in 1936 by Junius Blair Fishburn, president of the company that published *The Roanoke Times* (Koomen 2023).
- In response to a request from the Centennial Committee, VAS members submitted personal reflections about the Academy's role in science, science education, and their professional careers for use in the Centennial commemoration.

The 2003 Annual Meeting took place, as hoped, on the campus of William & Mary in Williamsburg. Its program included the customary oral presentations, luncheon, Negus Lecture, poster session, business meetings, installation of officers, and banquet on May 25. The Academy Council met on May 26. Among the centennial-related events and documents received were congratulatory letters from Governor Youngkin and US Senator Warner, a recorded address from US Senator Kaine, and a resolution from the Virginia Assembly Senate that was read to luncheon attendees by State Senator Ghazala Hashmi. A

powerpoint presentation looped on a large screen during the luncheon highlighted the Academy's history and featured excerpts from reflections written by its members.

Following the luncheon was the Sydney S. Negus Memorial Lecture by journalist and professional speaker Richard Cheatham. In period costume and voice, he portrayed 18th-century botanist John Clayton, who is one of the four scientists featured on the seal of the Virginia Academy of Science. In addition to informal conversations throughout the annual meeting, attendees at sessions organized by three Academy sections heard presentations and/or panel discussions about the history of the VAS: the Astronomy, Mathematics and Physics Section; Botany Section; and Chemistry Section. On the following morning, the Academy Council concluded its meeting by honoring long-serving staff member Carolyn Conway with the title of Associate Executive Officer Emeritus in recognition of her pivotal role in sustaining the Academy's daily operations, and in providing a welcoming and professional "face" of the VAS to students, faculty members, and institutions.

Documents, essays, and articles related to the Centennial and the Academy's history constitute this special issue of the *Virginia Journal of Science*. Many readers may be surprised to see personal reflections featured so prominently in a scientific journal. Charlotte Webb, author of *A History of the Virginia Academy of Science, 1923-2001: Networks and Professionalization*, reminds us that the VJS was established in 1939-1940 to publish not only peer-reviewed articles of scientific merit but also the proceedings of the Academy (Webb 2001 pp. 69-72, 76-77, 136-140, 169-170). The editors of this issue hope that readers will be enlightened and engaged by its contents, and that they will be inspired to participate in its future endeavors. As the articles and essays herein demonstrate, an organization such as ours is shaped – and, in large part, sustained – by the talents, efforts, and dedication of its members.

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SENATE OF VIRGINIA

SENATE JOINT RESOLUTION NO. 300

Commending the Virginia Academy of Science.

Patron—Hashmi

Agreed to by the Senate, February 9, 2023

Agreed to by the House of Delegates, February 13, 2023

WHEREAS, the Virginia Academy of Science, an organization dedicated to promoting the advancement of science in the Commonwealth, celebrates its 100th anniversary in 2023; and

WHEREAS, the science community of the Commonwealth founded the Virginia Academy of Science in 1923, with its first meeting being held at The College of William and Mary; and

WHEREAS, the early members of the Virginia Academy of Science sought to expand communication and cooperation across the Commonwealth among all branches of science and mathematics; and

WHEREAS, the Virginia Academy of Science helped to establish Virginia State Parks in 1936, fostering greater opportunities for individuals and families to enjoy the natural wonders of the Commonwealth; and

WHEREAS, the Virginia Academy of Science created the Junior Academy of Science in 1940 to promote and expand science education and research experiences for all middle and high school students; and

WHEREAS, the Virginia Academy of Science helped to establish the Science Museum of Virginia in 1970, creating a world-class institution where individuals and families could explore scientific concepts and ideas; and

WHEREAS, for the past 100 years, the Virginia Academy of Science has advised the Commonwealth's governors, legislators, and citizens; and

WHEREAS, the Virginia Academy of Science continues to fund scientific research for the good of our society, for the education of our students, and for the improvement of knowledge in the areas of science and mathematics; and

WHEREAS, the Virginia Academy of Science continues to pursue its mission to maintain in the Commonwealth an association for science across all branches and disciplines, including for scientific education and research; and

WHEREAS, the Virginia Academy of Science will celebrate its centennial during its annual meeting in May 2023 at The College of William and Mary; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the General Assembly hereby commend the Virginia Academy of Science on the occasion of its 100th anniversary; and, be it

RESOLVED FURTHER, That the Clerk of the Senate prepare a copy of this resolution for presentation to the Virginia Academy of Science as an expression of the General Assembly's admiration for the organization's history and its contributions to the Commonwealth.

A handwritten signature in dark ink, appearing to read "Susan Clarke Schaar".

Susan Clarke Schaar
Clerk of the Senate



COMMONWEALTH of VIRGINIA

Office of the Governor

Glenn Youngkin
Governor

May 19, 2022

Dr. Michael S. Price, President
Virginia Academy of Science
Science Museum of Virginia
2500 W. Broad Street
Richmond, Virginia 23220

Dear Dr. Price:

On behalf of the Commonwealth of Virginia, I am pleased to extend my sincere congratulations to the Virginia Academy of Science as you begin your centennial celebration.

Beginning in 1936, the Virginia Academy of Science has been a leader and advocate for scientific innovation. From playing a lead role in the development and creation of the Virginia State Parks System to more recent work with the Department of Education to recognize excellence in science achievement for high school students, the Academy makes real and lasting impacts on our Commonwealth. The Commonwealth is made better by the Academy's efforts to develop, enhance and promote scientific research and education in Virginia.

During this time of celebration, we unite as a Commonwealth to show our appreciation for the significant contributions of the Virginia Academy of Science and join in celebrating 100 years of excellence in scientific advancement, research and education.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn Youngkin".

Glenn Youngkin

MARK R. WARNER
VIRGINIA



UNITED STATES SENATE
WASHINGTON, D.C.

May 27, 2023

Dear Friends,

I am pleased to extend warm greetings to all who are gathered to celebrate the Virginia Academy of Science's 100th anniversary.

Since 1923, the Virginia Academy of Science has played a significant role in the Commonwealth. Through endeavors like supporting scientific research efforts, educating our young people, advocating for the opening of our state parks, and helping to create the Science Museum of Virginia, the far reaching impact that your organization has had is abundantly clear. We are fortunate that Virginia's scientists and science educators possessed the vision and ingenuity necessary to establish and build a strong foundation for this important institution. I commend all of the staff, elected officers, and members who have contributed to the Virginia Academy of Science since its founding 100 years ago.

On this important occasion, I am very pleased to join with your families, friends, and communities across the Commonwealth in saluting your accomplishments and wishing you continued success in the years to come.

Sincerely,

A handwritten signature in blue ink that reads "Mark R. Warner". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

MARK R. WARNER
United States Senator



**Transcript of Remarks for the 100th Anniversary
of the Virginia Academy of Science**

Timothy M. Kaine
Virginia Senator and Former Governor

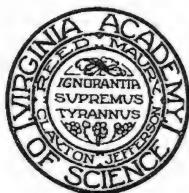
Recorded May 9, 2023 in MP4 format

Hey everyone, Tim Kaine here. I'm sorry that I can't be with you in person, but I want to recognize and congratulate the Virginia Academy of Science on your centennial celebration. You guys don't look a day over 99. You've provided 100 years of service to the Commonwealth of Virginia.

You've done so much for Virginia over the years. You've been key to launching our state park system, establishing the Junior Academy of Science, and creating the Science Museum of Virginia, a particular favorite of mine as somebody who lives in Richmond. You've helped improve education opportunities in math and science for Virginia's students. And you've provided important information to political and governmental leaders just like me. When I was governor of Virginia, your members helped me protect over 400,000 acres of our natural lands through an innovative conservation easement program. And some academy members served on my climate commission, the first of its kind in Virginia. I'm grateful for your work for your science-based advocacy that keeps us pointed toward the solutions that American Innovation can provide.

So, congratulations to the Virginia Academy of Science for an outstanding 100 years. And I look forward to all you will do in the future for our Commonwealth and our continued ability to work together. Thanks.

Virginia Academy of Science



Selected Highlights of the First Hundred Years of the Virginia Academy of Science, 1923-2023

A group of 135 scientists and science educators convened in Williamsburg at The College of William and Mary on April 26, 1923 to form the Virginia Academy of Science (VAS). In the ten decades since, the VAS has nurtured successive generations of scientists, advocated for science education, supported scientific research, and promoted science-based decision-making in our Commonwealth and in society. Among the Academy's significant accomplishments and activities in its first 100 years are these:

Public Service

- In partnership with the Garden Clubs of Virginia and the Izaak Walton League, met in 1929 to establish the **Virginia State Parks** system, which opened with six parks in 1936
- In the 1960s, lobbied vigorously to create the **Science Museum of Virginia**; the museum dedicated its first exhibit gallery in 1977
- Established and administers the **Kiser Fund for Science Teacher Education**, which makes awards annually
- Has provided **scientific advice** to Virginia governors and state agencies, beginning with the state's kepone disaster in the 1970s

Science Education in Grades preK-12

- Has been involved in hundreds of **teacher education and training programs** in the sciences, mathematics, medicine, and technology
- Founded the **Virginia Junior Academy of Science (VJAS)** in 1941 to foster original research in Virginia middle and high schools
- Numbering more than 100 affiliated schools, the VJAS provides a **national model for state junior science academies**; it has been ranked among the top three junior academies in the nation for over two decades
- Established the **VJAS Research Fund** that supports scientific investigations by Virginia's secondary school students
- Features more than 500 science research presentations by middle and high school students in the **Annual VJAS Research Symposium**; awards over \$80,000 in sponsored or endowed scholarships and prizes each year to Virginia middle and high school students for original research

- Brings together **secondary school students with research mentors** at Virginia colleges and universities each year; students visit campuses and conduct research under professors' mentorship
- Worked with the Virginia Department of Education to develop **two diploma seals to encourage and recognize science achievement by the Commonwealth's high school students**: The Board of Education's Diploma Seal for Science, Technology, Engineering and Mathematics (STEM); and The Board of Education's Seal for Excellence in Science and the Environment. The first seals were awarded in 2021 and 2022.

Supporting Scientific Research

- Established, with the early support of the DuPont Family, the first **scientific research fund** in Virginia; continues to award funds for research
- Beginning in 2001, has sponsored the **Annual Fall Undergraduate Research Meeting** to encourage and financially support collaboration by students and faculty in conducting original research as part of science curricula in four-year and two-year colleges and universities
- Founded the **Virginia Institute for Scientific Research** (established at the University of Richmond), the forerunner of Virginia's Center for Innovative Technology (CIT), which is funded in part by the Virginia General Assembly

Research Publications

- Published the *Flora of Richmond and Its Vicinity* (1930)
- Founded the *Virginia Journal of Science* in 1940 and continues to publish this research periodical
- Published *The James River Basin: Past, Present and Future* (1950), which was funded by the Virginia General Assembly; the book provides the first comprehensive, multidisciplinary account of the James and its resources, landforms, flora, fauna, industries, and businesses
- Part of the leadership team for the development and publication of the *Flora of Virginia* in 2012; the *Flora* is the first comprehensive guide to the Commonwealth's vascular plants published since 1762 (250 years earlier)

Social Justice, Education, and Environmental Protection

- In 1925, Academy leaders **submitted testimony in *The State of Tennessee v. John Thomas Scopes***, in which high school teacher John Scopes was tried for teaching evolution, a violation of state law at the time
- Supported **the inclusion of women and persons of color** in professional meetings of scientists and science educators
- Enacted resolutions supporting the **modern theory of evolution** and its teaching (1981), the Talloires Declaration on **environmental sustainability** (1993), the importance of **laboratory experiences in science education** (1995, 1996), the **elimination of coal ash ponds** (2018), the **conversion to renewable energy** (2019), and the **reduction of greenhouse gas emissions** (2022)

* * * *

Centennial commemorations will culminate with the Academy's 101st Annual Meeting at The College of William and Mary, May 24-25, 2023. For further information: www.vacadsci.org



Reflections about the Academy and its Centennial

By members of the Virginia Academy of Science

Compiled by Marco Aldi

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Commonwealth University, Richmond, Virginia 23220, maldi@vcu.edu

Edited by Woodward S. Bousquet

Professor Emeritus, Environmental Studies and Biology, Shenandoah
University, Winchester, Virginia 22601, wbousque@su.edu

Introduction

As part of the centennial commemoration of the Virginia Academy of Science (VAS), the Centennial Committee requested “testimonials,” i.e., brief reflections, from Academy members. The committee was looking for personal perspectives that showed how members believed the VAS has influenced science, scientific research, and/or science education, in the Commonwealth of Virginia. The sources of those reflections could be members’ personal experiences, the experiences of others, or general thoughts about the Academy’s influence in the Commonwealth.

The solicitation letter, written by committee members Marco Aldi and Woody Bousquet, suggested that the reflections could address one or more of the following:

- How the Academy’s activities have affected research (by students, faculty, agency staff, citizen scientists, and others);
- How the Academy’s activities have supported collaboration, professional growth, and/or collegiality among scientists and science students;
- How the Academy has influenced your teaching and/or research; or
- How the Academy has shaped the knowledge and lives of citizens in Virginia.

The testimonials received appear below. They were gently edited for clarity and context. At the banquet luncheon during the 2023 Annual Meeting, excerpts from the essays received by that time formed a portion of the looped PowerPoint presentation shown while members ate their meals prior to the Sydney S. Negus Lecture. Two additional essays that were received after the meeting are also included here. Taken together, these essays demonstrate the many and varied ways in which the Academy has fostered collegiality, encouraged research, influenced careers, supported science education, and shaped the course of science in Virginia during its 100-year history.

Reflections by:

[Michael Wolyniak, PhD](#)

Professor of Biology, Hampden-Sydney College

[John Hess, PhD](#)

Professor of Biochemistry, Virginia Tech

[Arthur W. Burke, Jr., PhD](#)

President of the Academy 1975-76

[James P. O'Brien, PhD](#)

Professor Emeritus, Psychology, Tidewater Community College

[R. Dean Decker, PhD](#)

Associate Professor of Biology (retired), University of Richmond

[Glenda Booth](#)

President, Friends of Dyke Marsh, Fairfax County

[Marion Lobstein](#)

Associate Professor of Biology, Northern Virginia Community College,
Manassas Campus

[Joe D'Silva, PhD](#)

Associate Professor of Biology, Norfolk State University

[Harold Grau, PhD](#)

Associate Professor of Biology, Christopher Newport University

[Gerald R. Taylor Jr., PhD](#)

Emeritus Professor of Physics and of Integrated Science and Technology, James
Madison University

[Richard S. Groover, PhD](#)

George Mason University, and VAS Centennial Committee Chairperson 2022-
2023

Michael Wolyniak, PhD
Professor of Biology, Hampden-Sydney College

As the President of the Virginia Academy of Science during the onset and buildup of the COVID-19 pandemic, I experienced firsthand the power and potential that our organization has as a force for science advocacy in the Commonwealth of Virginia. The Academy assembled a policy statement clearly explaining the benefits of vaccination for public distribution and made itself available as an expert organization for the support of public health initiatives. On the education side, the Academy launched a mentorship program in which scientists were paired with middle and high school classrooms across the Commonwealth to provide virtual mentorships in scientific research at a time in which virtual education was often the only available option.

The Academy also worked hard to hold its fall and spring meetings in virtual formats so as not to deprive the Commonwealth's scientists of the invaluable opportunities to disseminate their research that this organization provides. Taken together, I was proud of our organization's dedication to the scientific enterprise in the face of unprecedented challenges. I am confident that we will continue to meet these challenges in the next 100 years.

John Hess, PhD
Professor of Biochemistry, Virginia Tech

I have always valued the Virginia Academy of Science (VAS) as a forum for scientists to communicate discovery and connect with other scientists in the Commonwealth. The sections of the academy accommodate varied interests and expertise. The commitment to middle and secondary students, reflected in the work of the Junior Academy of Science (VJAS), has been an outstanding achievement of the Academy. During my tenure with the Academy, the success in building resources to fund the position of Director for the VJAS was a long, hard-fought challenge.

There are many rewarding memories of visits to campuses throughout Virginia for annual meetings. The deadlines for organizing scientific sessions and judges, recruiting outstanding presenters, publishing programs, judging presentations, and the delight of reuniting with colleagues each year contribute to stories of stress, success, and gratitude.

A particular incident occurred at the 2013 meeting of the Junior Academy, which always precedes the annual meeting of the senior Academy. The plenary session speakers for this meeting were Dr. Patricia Dove, Department of Geosciences, Virginia Tech; and Marc Edwards, Department of Civil and Environmental Engineering, Virginia Tech. Dr.

Dove is a University Distinguished Professor and C.P. Miles Professor of Science. She was elected to the National Academy of Sciences in 2012 and received the Governor of Virginia Outstanding Scientist Award in 2013. As she began her beautiful presentation on biomineralization at the opening session of the 2013 meeting of VJAS, Dr. Dove expressed gratitude to the Academy for supporting her interest in science. To my surprise she displayed the notification of her competitive research award (\$15) for her secondary school project, which I had signed as the director of VJAS in 1975. Through its history, VJAS has encouraged excellent science education, nurtured discovery, and recognized the accomplishments of students and teachers.

Similar to Dr. Dove's experience, others who participated in the meetings of VJAS went on to successful careers in science, education, and public service. The subsequent development of the Fall Undergraduate Research Symposium by the VAS provides opportunities for college and university students to hone their communication skills and challenge their imagination.

As a plant scientist, I was privileged to work with Marion Lobstein in encouraging VAS to support the advancement of the flora project. The current *Flora of Virginia*, with its iPad app is an acclaimed, valued resource for plant identification – an amazing contribution to the plant sciences.

It has been a privilege to know and to work with many colleagues dedicated to the Virginia Academy of Science. We now celebrate a 100-year history because of the vision, stewardship, and tenacity of leaders who maintained the Academy as a priority in their careers.

Arthur W. Burke, Jr., PhD
President of the Academy 1975-76

The establishment of the Virginia Academy of Science had a salutary role on education in Virginia. It drew together biology and other sciences to promote comradery across academic institutions statewide. Initially the Academy's emphasis was at the university and college level, but later, with the establishment of the Junior Academy of Science, science and mathematics education was strengthened into precollege levels of science knowledge and understanding.

James P. O'Brien, PhD

Professor Emeritus, Psychology, Tidewater Community College

I was looking for a job that would allow me to finish my dissertation research in human factors psychology. The Virginia Beach Campus of Tidewater Community College had opened in the old National Guard barracks at Camp Pendleton in 1971, and they were hiring faculty to keep up with rapidly growing student demand. So I was just passing through on my way to NASA, IBM, the “Big Three,” or maybe Lockheed. My Intro Psych students were Navy Chiefs on the way up, a self-made millionaire, a former Playboy bunny, a woman who slept in her car, and a mother of two little girls who with her husband had spent two years sailing the Atlantic, Caribbean, and the Gulf. She would later become the second woman Ph.D. in the Human Factors Program at Old Dominion University and, as I would too, a President of the Tidewater Chapter of the Human Factors and Ergonomics Society. Such students and dedicated TCC colleagues would make me fall in love with community college education.

It was 1972. My co-hire and I decided to visit Old Dominion University (ODU), the likely destination of many of our students, to see how they could help us deal with our scant resources. Ray Kirby, Psychology Department Chair at ODU, was a willing mentor and supporter, one of those models of the profession we all aspire to become. Ray was also long-time Chair of the Psychology Section of the Virginia Academy of Science. He made it clear that a scientist/science educator had a professional obligation to support local, state, and national science associations. Already a member of AAAS, I joined VAS and presented my first paper at the 1973 Annual Meeting.

I was intrigued to discover that Ray’s encouraging invitation was, almost word for word, a tradition within the Academy for building the membership. Leaders asked others to recognize their obligations to science, their discipline, and their colleagues. (Over the years, as academia and industry changed with the culture, that kind of personal reminder that we must all support one another still occurs, but far less often ... perhaps only between senior scientists and their students, and then, primarily for the national and international associations.)

This approach was characteristic of VAS and other state academies as higher education and even many industries, especially in the South, were still recovering economically through Post-Reconstruction and the Great Depression. For most research institutions, it was a world of financial vulnerability. State academies -- their journals and conferences -- were the most affordable venues for communication and development. Under such economic pressures and the encouragement of one’s superiors, the Virginia Academy would grow to become the fifth largest in the Nation.

I planted my professional roots in community college education, one of the most fulfilling adventures I’ve been fortunate to have. When Tidewater Community College

established an Honors Program, I knew I had a home in the Academy for the students in my course entitled Research Methods in the Behavioral Sciences, I and II. I had presented my research in a few national and international Human Factors and Ergonomics societies, but mostly in the Academy; that's where my friends first welcomed my students and treated them collegially. More than 60 co-authors (mostly my students and a few colleagues from TCC and Virginia Wesleyan) and I presented more than 80 papers, including one six-paper symposium. Obviously, most were in the Psychology Section but there were others in Biomedical Engineering, Education, and Medical Science.

Except for a few years, I've served in almost every office of the Psychology Section since 1975 and served, often as Chair, on several VAS Committees since 1978. I was elected VAS President (1992-93), Fellow, Academy Representative to the American Association for the Advancement of Science (which I joined in 1972), the National Association of Academies of Science, and the American Junior Academy of Science, two 5-year terms as the VAS Member (Seat 14) on the Board of Trustees of the Science Museum of Virginia, and I was founding Editor of *Virginia Scientists* (almost 20 years). In 2013 I was honored with the Academy's Ivey F. Lewis Award for Distinguished Service.

My VAS participation has also contributed in some part to other highlights of my career: AAAS Fellow, Carnegie Foundation for the Advancement of Teaching and Council for Advancement and Support of Education 2010 Virginia Professor of the Year, SCHEV Outstanding Faculty Award, VCCS Chancellor's Award for Teaching Excellence (inaugural year), and VCCS Chancellor's Commonwealth Professor for 2003-2005 and 2007-2009.

Yet of all our labors and projects I've seen bear fruit, the biggest personal reward has come from the people of the Academy with whom I was privileged to work shoulder-to-shoulder and enjoy their company, their friendship, and our mutual affection for our goals and each other. It is simply joyous to live a life of shared goals with dedicated, capable people who are mutually committed to one another, science, and the people of Virginia and our Nation.

The Virginia Academy of Science and Tidewater Community College have taken me to places I never imagined in 1972 and satisfied me professionally and personally beyond measure.

R. Dean Decker, PhD

Associate Professor of Biology (retired), University of Richmond

I got involved with the Virginia Academy of Science (VAS) in 1979 when the organization met at the University of Richmond. I ran the registration desk. The Virginia Junior Academy of Science (VJAS) symposium was very poorly organized. In a conversation with the incoming VAS president Vera Remsburg, I commented that I could do better. For the next year and the 15 years afterwards, I was the VJAS director. During that time, I also served six years as director of the American Junior Academy of Science (AJAS).

When I took over leadership of the VJAS, there were 12 paper sections with a maximum of 20 papers per section. The total number of papers submitted was less than 500, meaning that the acceptance rate was above 50%. During my tenure, the number of papers submitted increased to over 2000 with an acceptance rate of around 33%. We ran 35 paper sessions, which resulted in a significant increase in paper quality. There was also an increase in the number of schools that participated in the VJAS program. In addition, we were sending two, and sometimes more, students to the American Junior Academy of Science meetings. Award monies and trip expenses for winners rose to the \$50,000 range. Virginia's JAS became one of the three largest junior academies in the USA. I was contacted by academies from other states regarding how to start or improve their junior academies.

I would be remiss should I not give credit to those who helped make the VJAS's success possible. First, credit goes to the VJAS Committee; it is composed of university and college faculty, high school and middle school teachers, and representatives of local science-oriented businesses. These people provide information and direction for the VJAS events, run the workings of the annual meeting, and carry out other helpful activities. Second, credit to the people of science – that is, to university and college faculty plus industry representatives – who review the submitted papers to determine which ones qualify for presentation at the annual meeting. Each paper requires three reviewers. Third, credit goes to those individuals who serve as judges of the presentations to determine the winners. Fourth, credit to industries and individuals who provide the funds for prize monies and trips for the winners. One individual has endowed an award to help cover the expenses of the teachers of the AJAS winners to accompany their winning students to the AJAS annual meeting. That award is named the R. Dean Decker Award.

In closing, I was the VAS President for the 75th Anniversary of the Academy. With that came the privilege of selecting the featured speaker for the VAS & VJAS attendees. I secured Dick Rutan, the first person to fly around the world non-stop, who was well-received. After my tenure as VJAS Director, Don Cottingham was director for three years followed by our current director, Susan Booth. The VJAS is in good hands.

Glenda Booth
President, Friends of Dyke Marsh, Fairfax County

The Friends of Dyke Marsh would like to acknowledge the work of Brent Steury, Natural Resources Program Manager for the National Park Service's George Washington Memorial Parkway. He and various colleagues at the National Park Service documented over 1,500 species of beetles in 60 different families from the George Washington Memorial Parkway. These records are recorded in 32 peer-reviewed journal articles that describe 244 beetle species previously unknown in Virginia and five species new to science. One of the new species is named in honor of the Commonwealth of Virginia, another is named for the George Washington Memorial Parkway, and two are named in honor of former federal employees who devoted their careers to the protection of natural resources in the Washington, D.C. metropolitan area.

Marion Lobstein
Associate Professor of Biology, Northern Virginia Community College, Manassas Campus

It was 45 years ago that I attended my first Virginia Academy of Science (VAS) meeting in the spring of 1977 at Virginia State University. That academic year was the first in my 35-year biology faculty career at the Manassas Campus of Northern Virginia Community College. When I attended this meeting, I did not know what to expect, but I felt welcomed and stimulated by the members of the Botany Section I met. As I continued to attend subsequent Academy Annual Meetings, I continued to make contacts with colleagues around the state. While earning my first master's degree at UNC-Chapel Hill, I had the pleasure of studying with Dr. Ritchie Bell and using the *Manual of the Flora of the Carolinas* (Bell was a co-author of this manual). One of my first questions when I moved to Virginia was, "Is there a Flora of Virginia?" Alas, I discovered that one had not been published since 1762: the *Flora Virginia*, second edition, by John Clayton and Johanne Gronovius. During VAS meetings, I began to hear about efforts to develop a modern flora of Virginia. These efforts dated back to 1926 with the establishment of the Virginia Flora Committee; one of its main goals was to develop and publish such a flora.

I became active in the Botany Section and served in section officer positions including Councilor for many years. I also served the Academy as treasurer for three years and then vice-president for two years. In the late 1990's there was an opportunity to move forward with the idea of a modern flora of Virginia. Through the Virginia Flora Committee, an Academy grant was awarded that allowed the initial steps to organize an effort to establish a foundation to develop and publish a modern flora. In 2001, with the support of the Academy and other organizations, the Foundation of the Flora of Virginia Project

(FFVP) was established. The Academy became an early partner of the project. I was one of the founding members of the FFVP, served on the Board of Directors for 20 years, and acted as a liaison through the Virginia Flora Committee to VAS. In 2003 I was honored to become a Fellow of the Academy, and I have appreciated the financial support of the Fellows for the FFVP.

The monetary and other types of support from the Academy and its Fellows were essential to the development and publication of the Flora of Virginia in 2012 and then the Flora of Virginia App in 2017. The 1926 goal of the VAS and the Virginia Flora Committee – the goal of developing and publishing a modern *Flora of Virginia* – has been accomplished. With continuing updates to the Flora of Virginia App, the FFVP moves into the next 100 years of knowledge supported by VAS.

Joe D'Silva, PhD
Associate Professor of Biology, Norfolk State University

One hundred years ago, some women and men had the foresight to set up the Virginia Academy of Science (VAS). It is now an institution. The VAS is dedicated to the promotion of science in Virginia. It does so in a spirit of fellowship similar to learned societies elsewhere in the world. Over the years, the Academy has gone from strength to strength. The VAS can now boast of a robust membership, a group of dedicated personnel at the helm, the scientific meetings they have organized, a Junior Academy of Science, a scientific journal, and substantial funds. My purpose in writing is to recognize some of the people who have grown with the Academy who are leaving a mark on me.

What wisdom prompted early organizers to form the VAS? The answers can be gauged from the excellent history of the Academy written by Charlotte Webb and published in 2001. Not unlike today, the challenges for scientists in the early 1920s included attending national meetings, securing funds, and publishing papers. Eight institutions were represented at the meeting on January 21, 1921, in which participants formed the Association of Virginia Biologists to promote fellowship among biologists and to bring science to the layman. By 1921, 20 members were high school teachers; that total included a lone female. The organization's scope was broadened and its name was changed to the Virginia Academy of Science on April 26, 1923. In establishing the VAS, Ivey Lewis's role was instrumental, as was that of H.E. Hyden.

I came to the VAS by way of the Virginia Junior Academy of Science (VJAS), which was formed on May 31, 1941. I judged student submissions for presentations at annual meetings over the years, and still I enjoy doing it. My involvement came about

through the organizational efforts of Susan Booth, who was hired as VJAS Director in 1998-99 and continues to serve in that position. She is a powerhouse of energy, zeal, and enthusiasm - an infectious combination. Hers is a labor of love. Thanks to Susan, we now have Se Jeong as Chair of the Junior Academy of Science Committee. He is the future leadership of the Academy. But it was Debbie Neely-Fisher, currently VAS President, who tapped me during her first term as president (2016-17) to become a Council member. I was least qualified, not knowing what the position would entail. Over time, I came to get a feel of the Academy and the people who are responsible for its existence in no small measure: they are the volunteers, and they give the Academy its standing.

Woody Bousquet was President from 2018-19. I first encountered him at the Annual Meeting at Old Dominion University. His affection for the Academy showed then and in years since, especially at Council meetings where he would refer us to past decisions. I believe that for me, a newcomer, this was always helpful. Also of great interest was his knowledge of the flora (and fauna) of Virginia. In the same vein, I would also like to acknowledge Richard Groover, Rob Atkinson, and Chris Osgood. They make the Academy rich by their contributions to its proceedings.

The husband-and-wife Academy staff team, Art and Carolyn Conway, impressed me with their knowledge of the Academy. Art spoke at meetings from his long years of association as the VAS Executive Officer. Carolyn, the Associate Executive Officer, staffs the Academy's office located in the Science Museum of Virginia in Richmond. She retains a wealth of information about meetings, memberships, and events. Ask her any question about the past and she will be able to give you an answer. I had the pleasure of working with Executive Officer Phil Sheridan in my capacity as Chair of the Finance and Endowment Committee. Had it not been for Phil's spreadsheets to show me the finances of the Academy and track the numerous grants and awards offered, the income, and the expenditures, I would have been lost. The Academy's workings are reflected in the funds it holds and manages, thanks to endowments and membership fees.

A learned society is what its leaders and members are. Much can be written about the Academy's vast and complex evolution through its 100 years of existence. As we move toward the next centennial, new members and leaders will come with fresh ideas to shape the Academy as it grows and prospers.

Harold Grau, PhD**Associate Professor of Biology, Christopher Newport University**

Thirty years ago, I began my current faculty position as a probationary tenure-track candidate. The Virginia Academy of Science (VAS) was invaluable to my earning tenure some six years later, as it provided a venue for me to give professional presentations on the “smaller scale” type of research I was interested in: research that was low-cost and very amenable to undergraduate student participation. Both my students and I were able to give presentations and publish abstracts in an environment that was more accessible and less intimidating than larger, national meetings. For undergraduates, the experience was valuable in their moving on to graduate school. For me, these research presentations were a critical component of my tenure and promotion dossier. It was an added bonus to meet and interact with colleagues from other schools in the state.

Gerald R. Taylor Jr., PhD**Emeritus Professor of Physics and of Integrated Science and Technology, James Madison University**

The Virginia Academy of Science (VAS) is a volunteer organization of STEM professionals and associates dedicated to improving the educational opportunities for students and communications between students, teachers and faculty in the Commonwealth of Virginia. The Virginia Junior Academy of Science – which was founded and is sponsored by the VAS – is providing young middle and senior high school students opportunities to participate in supervised STEM projects, present their research in an organized scientific meeting of their peers, and compete for recognitions and awards. STEM undergraduates in our universities and colleges are invited annually to apply for undergraduate research funding awarded by the Virginia Academy of Science at its Fall Undergraduate Research Meeting. Annually, spring meetings of the Academy rotate among the universities and colleges in Virginia, providing students and faculty throughout the Commonwealth opportunities to present and defend their research with an oral or poster presentation in a science, engineering, or mathematics session.

At its 100th Anniversary, the Virginia Academy of Science continues to be a valued asset for STEM education in Virginia. It has been an honor to serve in the Academy in numerous positions including Secretary and President. Serving the Academy has been a very rewarding experience.

Richard S. Groover, PhD
George Mason University, and VAS Centennial Committee Chairperson 2022-2023

Our Centennial Annual Meeting has come and gone. As noted in the documents and the short video production, much has been accomplished in the past 100 years. There is certainly much to note with pride.

Many changes have also occurred in our 100 years of existence. We still meet, discuss, and present information about science. However, the investigations and depth of science presented is more detailed and includes more computational data. The people involved and topics are more diverse. All of these changes truly advance science.

Yet there are changes that concern me. The science community in Virginia has grown to the point that the Virginia Academy of Science is not the only professional group available. Groups have splintered off from what was originally just *one* academy of science and mathematics professionals in Virginia. Although this may be beneficial for the expansion of knowledge and discoveries, this fragmentation comes with consequences.

The number of college and university professors is finite and may be declining. Membership is the life's blood of a science academy. We have lost science professionals who no longer participate in the Virginia Academy of Science, especially some who are younger in their profession and could be the future of *our* Academy.

I have three suggestions for the Virginia Academy of Science. One is to focus increasingly on membership acquisition, membership retention, and benefits offered to members. Second, expand our membership outreach to people who might be categorized as citizen scientists, who don't work in academia but have focused interest in science learning and investigation. Groups like the Sierra Club and the Virginia Conservation Network could be approached. Third, we need to make concerted efforts in publicizing what the Virginia Academy is and does. Media announcements should be sent out frequently, when we have something important to report, or an issue on which to take a position. This last item can be apolitical. For example, explaining why biodiversity is important is not political. Concern about climate change and how it might impact Virginia also needs to be presented to all Virginians.

It will be my honor to continue my life membership in the Academy as long as I occupy my footprint on this earth.



Historical Trends in the Astronomy, Math, and Physics Section of the Virginia Academy of Science

Joseph Daniel Rudmin

On the occasion of its centennial, the Virginia Academy of Science (VAS) invited participants in the May 2023 Annual Meeting to give presentations on the history of the VAS. As secretary of the Astronomy, Math, and Physics (AMP) Section, I put together a poster for the history of the AMP Section, listing a sampling of titles of May meetings, and I hosted an open forum in our section to reminisce. Although I have little experience writing histories and had little time to devote to preparation, it seemed logical that I should attempt a contribution based on my long participation with the VAS. My late father Joseph W. Rudmin served as AMP secretary and then as AMP chair over a few decades. I presented papers as an undergraduate and then later served as AMP secretary for two decades. While the numbers of participants varied greatly, but generally fell, the quality of presentations remained strong.

I greatly appreciate VAS historical anecdotes and resource suggestions of former VAS Secretary Dr. Gerald Taylor in preparing this work. He mentioned to me, for example, that Rae Carpenter used to do physics demonstrations in the AMP section. One can find several histories of the Virginia Academy of Science (VAS) in VAS archives and on archive.org, some of great thoroughness. It is difficult, however, to find surviving records of the annual meetings from before 1940, when the *Virginia Journal of Science* (VJS) started. Material for my work came from those sources. One can find advertisements by major Virginia companies in those issues, with tens of business members of the VAS.

The AMP, originally called "Mathematics and Physics," was one of the four original sections when the VAS was established (Staggers and Flory 1973, p46), along with Biology, Chemistry, and Psychology. From 25 in 1940, the number of AMP meeting titles published from each May Annual Meeting dipped into the teens during 1940s, and then rebounded into the 30s. In 1989 the number of titles dropped back into the low teens, falling into single digits during the Covid-19 pandemic, and then rebounding into the teens in

2023. Holders of each AMP office changed with every election during popular years, while tenures typically extended beyond a decade when participation declined.

In their 1973 "History of the Virginia Academy of Science," which appears in Volume 24 of the Virginia Journal of Science, Harry Joseph Staggers and Walter S. Flory explain some drops in membership as due to removing deceased members from the rolls (Staggers and Flory 1973, 49). Perry C. Holt noted in a 1973 editorial that some departments discourage publication of work in the VJS in favor of more prestigious national journals, discouraging participation in the Virginia Academy of Science (Holt 1973, 73). At the VAS Meeting in 2010, Rae Carpenter, who endowed the AMP Best Student Paper Award, noted the aging VAS membership, and declining involvement compared to 40 or 50 years ago. He said that in the late 1940s when Jesse Beams was VAS president, some department heads used to order faculty to attend the VAS meetings. While annual meetings used to be organized by faculty, they are now organized by conference services of the host institution, often at great expense. Joseph W. Rudmin [personal communication] noted that many of his colleagues shunned the VAS, but he thought the VAS helped to maintain the activity and enthusiasm of undergraduates and augmented their education. He further observed that the Academy provided an avenue for undergraduate faculty to get their work published in a peer-reviewed journal and for members to publish and present ideas which are little studied. I speculate that a precipitous decline in the price of air travel in the 1980s (Rosen 2021) also facilitated participation in national conferences, crowding out participation in the VAS. The introduction of credit card miles and frequent flier miles (Thompson 2013) reduced the prices much more steeply than records of published fares show. As a result, undergraduate institutions came to dominate VAS membership, although R1 state schools still occasionally host a May annual meeting, perhaps out of a sense of duty and for recruitment. During lean years, other sections such as Materials Science and Computer Science meet with the AMP Section.

A sampling of presentation titles over the years reflects popular topics of research over the decades:

- "Effective rotation temperatures of two identical electrodeless discharges in different gases" in 1940
- "The Astrometric Orbit of the Spectroscopic Binary Chi Draconis" in 1951
- "Scintillation of Satellite Radio Signals" in 1960; "The strong hyperfine interaction in pi-mesic atoms" in 1969
- "A new soft x-ray detector" in 1980; "Preparation and testing of superconducting YBa₂Cu₃O_x" in 1988
- "Parallel-processing n-body orbit computation" in 2001
- "Evidence of a long-term warming trend in Chesapeake Bay, Virginia" in 2010
- "Enhancing vertex recognition in neutrino interactions with machine learning" in 2023

The content of presentations I see at VAS meetings is very similar to those at national conferences, probably recycling the same presentations, but I see more questions at VAS meetings.

The VAS May annual meetings provide a professional experience rarely found elsewhere. The low-pressure venue offers participants an opportunity for discussion and feedback with fewer distractions, and with others who have similar research resources. Many faculty join students in residing in dormitories on campus, keeping costs lower, and providing further opportunities for interaction. The banquet offers opportunities to recognize the significant work of those who volunteer to maintain the continuation of the VAS, and the scientific contributions of undergraduates who would not find such recognition elsewhere. For a comparable experience, one might have to attend a regional topical meeting at greater expense and higher specialization.

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Some Notable Women Botanists in the VAS: Their Roles in Supporting the Development of the Modern *Flora of Virginia*

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Abstract

With the publishing of the 2012 *Flora of Virginia* by the Foundation of the Flora of Virginia Project, the dream of modern flora for Virginia was realized. This was a goal of the Virginia Flora Committee of the Virginia Academy of Science as well as other groups such as the Virginia Botanical Associates and the Virginia Native Plant Society. The *Flora of Virginia* and the 2017 Flora of Virginia App were realized with the work, support, and encouragement of many individuals and organizations. This paper focuses on the lives, contributions, and work of six women botanists in the Academy who played important roles in developing the *Flora of Virginia* as well as continuing its future evolution: Miss Lena Clemmons Artz, Dr. Martha Kotila Roane, Dr. Dorothy Cranford Bliss, Dr. Donna M.E. Ware, Dr. Andrea Weeks, and Ms. Marion Blois Lobstein.

Introduction

In May 2023, the Virginia Academy of Science (VAS) held its Centennial Annual Meeting at the College of William and Mary, the site of its inaugural meeting. At that meeting in the Botany Section, I presented a PowerPoint entitled “Some Notable Women Botanists in the VAS: Their Roles in Supporting the Development of the Modern Flora of Virginia.” In the PowerPoint presentation of this talk, I highlighted the contributions of the first five women in the list in the abstract above. Following this presentation, I was encouraged to write a paper for *the Virginia Journal of Science* based on that presentation.

In addition, several individuals suggested that I include my own background and contributions to the Academy and the Flora of Virginia Project.

From the founding of the Virginia Academy of Science in 1923, women scientists and educators have played a key role in the organization. Of the 134 charter members of VAS, twelve were women. (Staggers 1966) Through the years, various women botanists, many of whom were VAS Virginia Flora Committee members, contributed to the development of a modern flora for Virginia. (Webb 2001)

In 1926, the Academy's Committee on Virginia Flora, now called the Virginia Flora Committee or simply the Flora Committee, was established. One of the Flora Committee's primary goals was to develop a modern flora for Virginia. (Webb 2001) Virginia had not had a flora since 1762.

The Colony of Virginia had the first flora of any of the original thirteen colonies. In the 1730s, John Clayton of the tidewater region sent herbarium specimens of plants he had collected from the area to Mark Catesby in England. Catesby later shared them with Johan Frederick Gronovius in Holland. Clayton also had shared a manuscript describing these specimens. Using Clayton's manuscript and specimens, Gronovius published the first edition of the *Flora Virginica* in two parts in 1739 and 1743, and he then published the second and last edition of the *Flora Virginica* in 1762. (Stemmler 2004)

In the 1960s and 1970s, the Flora Committee renewed its efforts to document the flora found in Virginia. In 1961, Dr. A.B. Massey, chair of the Flora Committee, published an annotated checklist of Virginia plant species in his *Flora Virginia*. In 1977, Dr. Alton Harvill Jr., former Flora Committee chair who founded the Virginia Botanical Associates (VBA), published the *Atlas of the Virginia Flora* Part I, with Charles E. Stevens and Dr. Donna M.E. Ware, a Flora Committee member, as coauthors. (Harvill 1977) The *Atlas* provided only scientific names and maps showing the documented presence of each species in Virginia counties.

Work progressed on the *Atlas* with further editions published in 1981, 1986, and 1992. The *Atlas* is now the *Digital Atlas of Virginia Flora* at <https://vaplantatlas.org/> .

Harvill recognized the contributions to the *Atlas* made by the Academy's Flora Committee members, which included Ware, Artz, Roane, and Bliss. (Harvill 1977) These notable women were all active in presenting papers in the Biology Section, and later in the Botany Section, at Academy annual meetings. Carrying on the tradition of these women, Weeks has become an active Academy member in the Botany Section of the VAS. She is also currently serving on the board of directors of the Foundation of the Flora of Virginia Project. (The Flora of Virginia Project 2023)

By the late 1990s, the dream of a modern flora for Virginia had still not been realized. But in 1999, an opportunity arose to explore the possibility of creating a modern flora with the support of the Flora Committee. Also that year, Dr. Alan Weakley agreed to his involvement in the effort to produce a flora for Virginia if sufficient support could be obtained. In 2000, a grant from the Academy was approved to explore the endeavor. In 2001, Christopher Ludwig, then Chief Biologist of the Virginia Natural Heritage Program, also agreed to be part of the project. (Lobstein 2020)

In 2001, the Foundation of the Flora of Virginia Project (FFVP) was founded. The Foundation's first meeting was held at the Natural Heritage Program headquarters in Richmond in August of 2001. The Academy became a Partner of the FFVP and, along with its Fellows, provided major financial support for the Flora Project. Indispensable support also came from the partnership with the VBA, the Virginia Natural Heritage Program, the Virginia Native Plant Society (VNPS), and Lewis Ginter Botanical Gardens. (The Flora of Virginia Project 2023)

Finally, in 2012, the dream of a new modern flora for Virginia was realized with the publication of the *Flora of Virginia* manual. (Weakley 2012) A second printing with corrections occurred in 2013. Then, to put the *Flora* at the fingertips of its users, the Flora of Virginia App for cellphones and tablets was developed and then released in 2017. (Weakley 2020) The App has been updated on a continuing basis "to keep the science current." (The Flora of Virginia Project 2023) In 2021, a third board of directors was established to continue the future development of the Flora of Virginia App. (The Flora of Virginia Project 2023)

The dream of publishing the *Flora of Virginia* manual and the creation and release of the Flora of Virginia App could never have happened without the groundwork laid out by the VAS Virginia Flora Committee and its dedicated members' support through the years. With that in mind, the following discussion summarizes the backgrounds, achievements, and contributions of some of the notable women botanists of the VAS who helped to inspire and carry forward the dream of a modern flora for Virginia and ensured its future development.

[Miss Lena Clemmons Artz](#)

[Dr. Martha Ann Kotila Roane](#)

[Dr. Dorothy Crandall Bliss](#)

[Dr. Donna M. E. Ware](#)

[Dr. Andrea Weeks](#)

[Ms. Marion Blois Lobstein](#)

Lena Clemmons Artz (1891–1976)

Lena Clemmons Artz was born in 1891 to a farming family near Woodstock, Virginia, close to the Seven Bends of the North Fork of the Shenandoah River at the base of the Massanutten Mountains. At age 18, she published her first scientific paper in the publication *The Guide to Nature*. Also at that age, she may have begun teaching in local schools in the Woodstock and Port Republic areas of Virginia. There is evidence that she used nature-oriented workbooks in her teaching at the high school level. (Weeks 2022a)



Miss Lena Clemmons Artz
(Weeks 2023)

Artz enrolled in the College of William and Mary (W&M) in Williamsburg and earned a B.A. in biology three years later. In her early thirties, she had begun collecting and preparing herbarium specimens of plant species found in the Massanutten Mountains. Her time at W&M certainly formalized her interest in plants and botany. Artz was active in the W&M Clayton-Grimes Biology Club and served as an officer. This club was named in honor of John Clayton and Dr. E. J. Grimes. Grimes was professor of botany at W&M and was active in the 1920 group that met to propose establishing a statewide academy of science. Despite his early death in 1921, his interest in establishing the VAS surely influenced the participation of Artz and other W&M students and faculty in the newly formed Academy. (Weeks 2022b)

In 1930, Artz moved to Arlington, VA and became a teacher at Washington and Lee High School. By 1932, she began work on a Master of Arts degree at George Washington University and completed the degree in 1935. Her thesis was entitled “Plants of the Shale Banks of the Massanutten Mountains.” (Weeks 2022a)

It may have been during this period that she joined VAS. By 1934, she published her first paper in the Flora Committee’s publication *Claytonia*. Between 1934-1939, Artz published eleven papers in that publication. During this time, she was also active in the Biology Section of the Academy, presenting papers and serving as a section officer. Later in her teaching career she taught at Mount Vernon High School. She was instrumental in establishing the Virginia Junior Academy of Science (VJAS) in 1941 and served on its first council as secretary. Artz was elected an honorary life membership in 1976. (Weeks 2022a) (Weeks 2023)

When the *Virginia Journal of Science* (VJS) was established in 1940, Artz published in that journal and served on its editorial board. She also became active in the Southern Appalachian Botanical Society (SABS), published nine papers in its journal *Castanea* from 1939 until 1967, and, in 1953, served as the SABS vice-president, its first woman officer.

(Weeks 2023) She also was a member of many other professional organizations such as the American Association for the Advancement of Science, the Botanical Society of Washington, and the American Fern Society. (Weeks 2022b)

After her retirement from teaching in 1947, she moved to Fort Valley near where she grew up, and she built a cabin at the northern end of the valley. She continued to explore the shale barrens of that area, collecting herbarium specimens along with writing and publishing papers on that fragile ecosystem. She also became involved in conservation efforts working with the Isaac Walton League, the Potomac Appalachian Trail Club, and the US National Parks & Conservation Association. (Weeks 2022a)

Artz's botanical research, publications, and work with the Flora Committee contributed to laying the foundation for a modern flora for Virginia. Details of her life and contributions are now being rediscovered and documented by Dr. Andrea Weeks. (Weeks 2023) (Weeks 2024)

Martha Kotila Roane (1921- 1996)

Martha K. Roane was born Martha Ann Kotila in Munising, Michigan in 1921. She grew up influenced by her father, a plant pathologist, and her mother, who came from a farming family. When she was eleven, her family moved to Washington, DC when her father accepted a position as plant pathologist for the U.S. Department of Agriculture. (Anonymous 1996)

Following her graduation from high school in Washington, DC in 1939, she earned a B.S. in botany from Michigan State College, now Michigan State University. After WWII, she earned a M.A. degree in plant pathology from the University of Wisconsin and then began PhD work there. (Anonymous 1996)

In 1947, she moved to Blacksburg, Virginia when she married Curtis W. Roane, a plant pathologist at Virginia Polytechnic Institute and State University (VPI), now known as Virginia Tech (VT). For over a year, Roane worked as a technician at VPI in the Agricultural Engineering Department. Later, she served as a part-time instructor of mathematics at VPI. Following that, she was a full-time instructor at Radford College, now Radford University, and later was an assistant professor there. In 1971 she completed her PhD at VPI in mycology. Subsequently, Roane was appointed Adjunct Professor of Plant Pathology and Physiology at the same institution. Among her specific areas of research were the American chestnut blight and the fungal diseases of rhododendrons and grasses. She was also interested in the taxonomy of rhododendrons and was active in the American Rhododendron Society-Middle Atlantic Chapter. (Anonymous 1996)

In the early 1970s, Roane became active in the Botany Section of the Academy where she presented numerous papers and held several officer positions. For eight years, she was on the Flora Committee, and she chaired the committee from 1976 to 1977. She also edited and contributed to the committee's publication *Jeffersonia*. At the Academy level, she served as treasurer in 1982. In addition to serving on the Flora Committee, Roane also served on other VAS committees, and she represented the Academy on the advisory board for the Science Museum of Virginia. In her involvement with the Flora Committee, Roane researched and wrote keys to the rhododendrons and grasses of Virginia. In 1991, she was elected a Fellow of the Academy. (Anonymous 1996)

Through the years, Roane published papers in the *Virginia Journal of Science* and similar journals and co-authored other publications as well. A listing of her publications appears in her necrology article in the *Virginia Journal of Science* (Anonymous 1996), and



Dr. Martha Ann Kotila Roane
(Anonymous 1996)

a collection of her papers and publications is available online on the University of Virginia website. (A guide to the Martha K. Roane Papers)

She was also a contributor to the *Atlas of the Virginia Flora* through her taxonomic research on rhododendrons, grasses, and Liliaceae. (Harville 1977) She was a coauthor for a Florida species of *Lilium* giving it the binomium of *Lilium mary-henryae*. (Roane and Henry 1980)

Other organization in which she was involved included the American Phytopathological Society and the Mycological Society of America. Roane was also an active volunteer for the American Red Cross and for both the Girl Scouts of the USA and the Boy Scouts of America. (Anonymous 1996)

Martha Roane played a key role in establishing the groundwork for a modern flora for Virginia through her eight years on the Flora Committee, her work on taxonomic groups, and her tireless enthusiasm for achieving the final goal.

Dorothy Crandall Bliss 1916-2013

Dorothy Crandall Bliss was born Dorothy Louise Crandall in 1916 in Westerly, Rhode Island. After graduating from Westerly High School, she earned a B.S. in biology from the Rhode Island State College (now the University of Rhode Island), a M.A. from the University of Wyoming, and a Ph.D. in botany from the University of Tennessee. From 1949-1993, she taught biology at Randolph-Macon Women's College (R-MWC), now Randolph College. After retirement, she became a professor emeritus of that institution. (Anonymous 2013)



Dr. Dorothy Crandall Bliss

Soon after Bliss began her teaching career at R-MWC, she became a member of the Academy; she was active first in the Biology Section and later in the Botany Section. In both sections, she served in section officer positions. At the Academy level, Bliss served as well: she chaired the Flora Committee, served on the Research Committee and the Publications Committee, and chaired an Academy Ad Hoc Committee on the Nation's Bicentennial. She served on the editorial board as well as published in the *Virginia Journal of Science*. Bliss also supported the VJAS and served on its committee. In 1979, based on her Academy service and contributions, she was elected as a Fellow. (Anonymous 2013)

Bliss was listed as a contributor to the 1977 Part I of the *Atlas*. (Harvill 1977) In her work for the Flora Committee, she had researched and developed keys to the Liliaceae that were used in the *Atlas* treatment of that family.

Bliss established the herbarium at R-MWC where the herbarium specimens of many plants she had collected, pressed, and prepared were kept. The specimens were also shared with other herbaria. In 1941 and 1965 she published two articles on the ferns of Rhode Island. (Crandall 1955) She also discovered a population of *Shortia galacifolia* in Amherst County, Virginia and authored an article on her findings. (Crandall 1955)

Bliss was active in SABS, serving in various offices including as vice president in 1963 and president in 1966. Another organization in which she was active was the Natural Bridge Appalachian Trail Club, where she served as president in 1951-1953, 1970-1971. (Horn 2012)

Bliss was a charter member of the Blue Ridge Wildflower Society, a chapter of the Virginia Native Plant Society (VNPS). She led field trips and authored articles on native plants for her chapter and for the Society. At the Society level, she served as its first botany

chair and began the Registry Program for the Society. Through these roles she shared her enthusiasm and knowledge of native plants to members and the general public. She also compiled and published checklists of ferns and fern allies and of woody plants of Virginia for VNPS members. (The Virginia Native Plant Society 2024) Bliss also established the botanic garden at Randolph college, which has been dedicated to her memory. (Randolph College Natural History & Archaeology Collections Project)

Through her lifelong teaching, research, and activities in the VAS, VNPS, SABS, and other groups, Bliss was instrumental in laying the groundwork for a modern flora for Virginia. She served on the advisory board for the FFVP and lived to see *Flora of Virginia* published in 2012. (The Flora of Virginia Project)

Donna Marie Eggers Ware

Donna Marie Eggers Ware, born in 1942, grew up on a farm in the Ozarks of Missouri. Her interest in wildflowers began as a child growing up on that farm and exploring for wildflowers in nearby abandoned pastures. (D. Ware, personal communication, 2023)

In 1960, her early interests led her to major in biology at Southwest Missouri State College (SMS), now Missouri State University, where she earned a B.A. in biology. While at SMS, a course in plant taxonomy from Dr. Paul Redfearn along with working as his assistant in the herbarium laid the foundation for her lifelong passion for plant taxonomy. By 1969, she earned her Ph.D. in biology from Vanderbilt University where she studied under Dr. Robert Kral. Her dissertation topic was a revision of the genus *Valerianella* in North America. (D. Ware, personal communication, 2023)



Dr. Donna M.E. Ware
(The Flora of Virginia Project)

In 1969, Ware accepted the position of Herbarium Curator at the College of William and Mary (W&M) and later was appointed Research Associate Professor. She retired from those positions in 1999. (D. Ware, personal communication, 2023)

Soon after her arrival at W&M, she became active in the Biology Section of VAS. Prior to joining the Academy, she had heard of the efforts of the Flora Committee to develop a modern flora for Virginia. She became an active member of this committee and later its chair from 1992-1995. When the Botany Section was established in 1972, she became active in that section. She also served as the VAS treasurer from 1980-81. (D. Ware, personal communication, 2023)

In her work with the Flora Committee chaired by Dr. Alton Harvill, she became involved with the development of the 1977 *Atlas of the Virginia Flora* Part 1; served as a co-author of that work and the subsequent printed editions. (Harvill 1977) During work on the *Atlas*, Harvill broke with the Academy and set up the Virginia Botanical Associates, VBA. During this time, Ware also joined the newly established VBA, led by Harvill, and served as its president from 2003-2007. (D. Ware, personal communication, 2023)

Early in her career, Ware also became active in the SABS not only publishing in its journal *Castanea*, but also serving as a Society president from 1988-89. In 1997, she received the distinguished SABS Elizabeth Ann Bartholomew Award in recognition of her contributions to botany and her service to the Society. (Horn 2012) She has also been active

in other professional organization such as American Society of Plant Taxonomists. (Ware 1983)

Ware's expertise in plant taxonomy includes floristics of the Virginia coastal plain, and mountain-coastal plain disjuncts. She has conducted rare plant inventories and population monitoring projects and became an authority on the population ecology of *Isotria medeoloides* and *I. verticillata*. (D. Ware, personal communication, 2023)

In 2001, when FFVP was founded, VBA became a partner of the project. Ware served on the original FFVP board representing VBA. She was Nancy Ross Hugo's co-author of the "Plant Discovery and Documentation in Virginia: A Historical Perspective" chapter of the *Flora*. As well, she wrote the treatments of the genera *Valeriana* and *Valerianella* for the *Flora*. (The Flora of Virginia Project)

Ware has also been active in Virginia Native Plant Society (VNPS), a partner of FFVP. She was a charter member of the John Clayton Chapter of VNPS. She has remained an active member serving in chapter offices, leading field trips, presenting programs, and authoring articles on native plants. (The Virginia Native Plant Society 2024) In addition, she took part in the founding of the Williamsburg Botanical Garden and Freedom Park Arboretum and currently serves on their board of directors. (D. Ware, personal communication, 2024) Also, Ware served as the botanical consultant for the 2001 book *With Paintbrush and Shovel* by Nancy Kober. (D. Ware, personal communication, 2023)

Ware has continued to be an active contributor to her community and to botany in Virginia. Through her work on the VAS Flora Committee, VBA, VNPS, and SABS, she helped set the stage for producing the modern *Flora of Virginia*.

Andrea Weeks

Weeks was born in 1975 and grew up on her family's farm in Harford County, Maryland. Her interest in plants from her childhood experiences led her to earn a B.S. in plant biology at Cornell University (CU). During her first year there, she worked in the CU herbarium, where her interest in plant systematics began. She went on to earn her Ph.D. in Systematic Botany from the University of Texas at Austin in 2003. Shortly after her graduation she was awarded a Post-doctoral fellowship in systematic botany at that same institution. (A. Weeks, personal communication, 2023)

In 2005, she accepted the position of Associate Professor of Biology at George Mason University (GMU) and became the Director of the Ted R. Bradley Herbarium there. From 2017-2019, Weeks was on a leave of absence from GMU to serve as a NSF program officer for systematics and biodiversity science. (The Flora of Virginia Project)



Dr. Andrea Weeks
(The Flora of Virginia Project)

Since 2015, Weeks has had a number of National Science Foundation (NSF) grants to digitize herbarium collections in Virginia and other southeastern states. In 2019, Weeks received a NSF grant to support the Bradley Herbarium's adoption of the herbarium from the recently renamed Laurel Ridge Community College – Middletown Campus. Among the recently acquired herbarium specimens, she discovered a number of Lena Artz's specimens of shale barrens species from the Massanutten Mountains area. Later, Weeks also acquired the collection of Artz's notes and other memorabilia that had been donated to the community college. This forgotten information led to her to conduct research into the life and work of Lena Artz and her contributions. The information she found inspired Weeks to create the Wikipedia biography entry for Artz. (Weeks 2023) Weeks also has presented a number of programs on the legacy of Artz that are available for online viewing. (Weeks 2022a, 2022b) She also recently published an article in *Castanea* on the legacy of Artz. (Weeks 2024)

Weeks is an active member of several other professional organizations including the Virginia Botanical Associates, the Southern Appalachian Botanical Society, the American Society of Plant Taxonomists, the Linnean Society, the Society of Systematic Biologists, and the Society of Herbarium Curators, where she is a past president. (The Flora of Virginia Project) Weeks has authored almost two hundred papers. (George Mason University 2024)

Since 2006, Dr. Andrea Weeks has been active in the Botany Section of the Academy, presenting papers, sponsoring students, and serving in various officer positions. She received an Academy research grant in 2015.

In 2020, Weeks served on the Flora of Virginia Project Future Committee and, in 2021, she accepted a position on the present board. She also participated in the 2023 update of “The Natural Communities” section of the Flora App. (The Flora of Virginia Project 2023)

Weeks has contributed to updates in the Flora of Virginia App and to current work of the FFVP board of directors. She is contributing to the future of the Virginia Academy of Science and the Flora of Virginia Project through her active roles in these two organizations.

Marion Blois Lobstein

I was born Marion Louise Coble in Texas in 1945 but grew up in the Carolinas. My interest in nature grew from exploring the areas around my hometown near Charlotte, North Carolina, and the participation in Girl Scouts of the U.S.A. outings and earning nature badges.

As biology major earning a B.S. in education at Western Carolina University from 1964-1968, I took my first plant identification class and became captivated by plant taxonomy. In the class, taught by Dr. James Horton, students used the *Guide to the Flora of the Carolinas*. Later while earning my first master's degree, a M.A. in teaching with an emphasis in botany at the University of North Carolina-Chapel Hill, I had the opportunity to take a plant taxonomy class with Dr.



Ms. Marion Blois Lobstein
(The Flora of Virginia Project)

C. Ritchie Bell, co-author of the *Manual of the Vascular Flora of the Carolinas*. In 1984, I completed a M.S. in biology at George Mason University.

In 1974, I began my teaching career at Northern Virginia Community College (NVCC), first as Instructional Assistant and in 1976 as Assistant Professor of Biology. One of the first questions I asked was, "Where is a flora for Virginia"? In 1979, I began teaching plant identification courses at NVCC, and in the early 1990s I started teaching summer Field Botany classes at Blandy Experimental Farm (BEF). Without a reference for Virginia flora, I "made do" with popular field guides of that time or the *Flora of West Virginia*. In 1985, using the *Atlas of the Virginia Flora*, I compiled and published checklists of plants documented for the Northern Virginia Area and used them in my teaching.

In 1977, I attended my first Virginia Academy of Science (VAS) meeting. While attending Botany Section meetings and subsequent annual meetings, I learned of efforts to develop a modern flora for Virginia. At those early meetings, I met three women botanists that were involved with the Virginia Flora Committee: Dr. Martha Roane, Dr. Dorothy Bliss, and Dr. Donna Ware. I also learned of Miss Lena Artz, another Academy botanist. In more recent years, I have known Dr. Andrea Weeks. I have remained active in the Botany Section serving in section offices and presenting papers. In 1996, I was invited to serve on the VAS Flora Committee, on which I still serve. At the Academy level, I served as the Botany Section Councilor for many years, Treasurer from 1998-2001, and Vice-President from 2001-2003. In 2003, I was elected an Academy Fellow. (Lobstein and Henkanaththegedara 2018)

In 1983, the Virginia Wildflower Preservation Society (VWPS), now the Virginia Native Plant Society (VNPS), was organized. I was a charter member of VWPS and of its

Prince William Wildflower Society chapter (PWWS). I have remained active at the Society and the chapter level as well. One of VNPS's early goals was also to support the development of a modern flora for Virginia, and it has been a partner of FFVP since 2001. Since joining the VNPS, I have authored articles on native plants for the PWWS newsletter *Wild News*. (Lobstein 2023)

Then in 1999, on behalf of the VAS Flora Committee, I met with Dr. Alan Weakley to discuss the possibility of his involvement in efforts to develop a flora for Virginia. An Academy grant to explore the possibilities was approved. The following year, I met with Chris Ludwig to ask him if he would be willing to head up these efforts. In August 2001, the first meeting of the board of directors for the Foundation of the Flora of Virginia Project (FFVP) was held. I served on the FFVP board of directors from 2001-2021. (The Flora of Virginia Project 2023)

From 2001-2012, I assisted in writing and editing drafts for descriptions of numerous plant species that the flora would contain. I also kept interested groups apprised of the progress of the FFVP, which fondly became known as "The Flora Project." In addition, I initiated and helped with fundraising for the FFVP. Finally, in 2012, the modern flora for Virginia came to life when the Flora Project published the first edition of the *Flora of Virginia*. (Lobstein 2021)

One of the highlights of my professional life has been to play a role in helping to achieve the publication of the *Flora of Virginia*, which was once only a dream. The contributions of Lena Artz, Martha Roane, Dorothy Bliss, Donna Ware and now Andrea Weeks have been inspiring and important to me. I have been honored to have known most of these women botanists and to write about their contributions in creating a modern *Flora of Virginia* in its current and future forms.

Conclusion

With the publishing of the 2012 *Flora of Virginia* by the Foundation of the Flora of Virginia Project, the dream of modern flora for Virginia was realized. This was a goal of the Virginia Flora Committee of the Virginia Academy of Science as well as other groups such as the Virginia Botanical Associates and the Virginia Native Plant Society. The *Flora of Virginia* and the 2017 Flora of Virginia App were realized with the work, support, and encouragement of many individuals and organizations. This paper focused on the lives, contributions, and work of some of the women botanists in the Academy who played important roles in developing the *Flora of Virginia*.

Acknowledgements

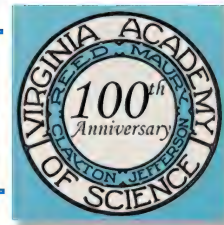
I would like to acknowledge and thank the following individuals for their advice, editing, and encouragement to write and prepare this paper for publishing in the *Virginia Journal of Science*: Mrs. Linda Wilcox, Dr. Donna Ware, Dr. Andrea Weeks, Dr. Conley McMullein, Dr. Woodward Bousquet, Dr. Christopher Osgood, Mr. Chris Ludwig, and Ms. Karen Vaughan.

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**The Virginia Academy of Science:
A Scholarly Forum over Decades for Students of a Plant Ecologist**

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Abstract

As a newcomer to Virginia in 1968, I learned that annual meetings of the Virginia Academy of Science (VAS) were regarded as an excellent place for students to have their first experience giving a talk about their research to fellow scientists, and a place for faculty to get to know other Virginia scientists in their fields. Over the next four decades William and Mary students (undergraduate and graduate) and I were presenters or co-authors of 42 talks or posters at VAS annual meetings, 29 of them based on studies of plant ecology across Virginia. Two were talks by colleagues with whom we shared ecological data, part of the continued interaction with other botanical scientists across Virginia that was so enriching to our studies. Seven of the student presenters later published their work as articles in the *Virginia Journal of Science*. The Academy has been an integral part of my career for over half its existence! Long may it serve Virginia's scientists and their students!

The Early Years

At an ASB (Association of Southeastern Biologists) meeting in the spring of 1967, I met botanist Gwynn Ramsey of Lynchburg College (now University). Learning that I had just taken a job at the College of William and Mary, he said to me "Once you are in Virginia, be sure to come to the yearly meetings of the Virginia Academy of Science. It is a good way to get to know other botanists across Virginia."

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Once at William and Mary, I learned that many William and Mary science faculty members, not just botanists, regarded the Virginia Academy of Science (VAS) as an excellent place for their budding research students to get their first experience giving a talk at a scientific meeting. Folks from the Biology, Geology, Psychology, and Chemistry Departments attended the VAS meeting each year. In those days, there were no posters; “presenting a paper” required an actual talk standing before an audience of scientists. Not only did students get that new experience of speaking before other scientists, but the printed abstract of their talk that would appear in the *Virginia Journal of Science* would be the first published work with the student’s name on it.

In 1968 I joined other William and Mary faculty and students at my first VAS meeting. Seven William and Mary Biology faculty colleagues had students giving talks in the Biology Section of the VAS or gave talks themselves. These were botanist Gus Hall, herpetologist Jack Brooks (who was Secretary of the VAS), mammal ecologist Dick Terman, invertebrate physiologist Charlotte Mangum, endocrinologist Ian Callard, microbiologist Carl Vermeulen, and cell biologist Bob Black. Graduate student Carolyn Mohler and undergraduate student Art Conway were among the William & Mary students giving talks. These two later married one another, and as faculty members at Virginia Commonwealth University and Randolph-Macon College, respectively, Carolyn Mohler Conway and Art Conway have been pillars in the leadership of the VAS to this day.

At that first VAS meeting, among the botanists I met were botanist Dean Decker of the University of Richmond, Director of the Virginia Junior Academy of Science, who each year arranged all the sessions for high school students experiencing their first scientific meeting; plant taxonomist Alton Harvill of Longwood College (now University), Chairman of the VAS Virginia Flora Committee which was pushing for the production of a new book on the flora of Virginia; and botanist Len Morrow of Randolph-Macon College, an ardent promoter of involvement of Virginia botanists in the VAS. I was to have many interactions with these three at future VAS meetings.

In the first half of my first decade in Virginia, unlike my William & Mary colleagues, I rarely had students presenting papers at VAS meetings. Nearly all plant-oriented William & Mary students wanted to do research in the field, not the experimental studies of adaptations of rock outcrop plants done in a greenhouse that I offered them as research projects. Therefore, in my first six years I had only two students present papers at a VAS meeting, both of them graduate students (Table 1). But once I began offering students the option of either an experimental study or a field study of composition of hardwood forests, research students suddenly increased. In the second half of that decade six students presented papers, all of them dealing with forest ecology in Virginia (Table 1). Two of those studies were later published in the *Virginia Journal of Science* (Glascock & Ware 1979; Clark & Ware 1980).

Table 1. First Decade (1968—1978) of Virginia Academy of Science presentations (11 talks, 7 on Virginia plant ecology). State abbreviations in bold type; CP = Coastal Plain; UG = undergraduate researcher; Grad = master’s degree candidate; VJS indicates a paper published in the *Virginia Journal of Science*.

Year:	Presenter:	Subject:	Later Publication?
1969	Ware, S.	TN limestone outcrop plants, competition	Yes, 1991
1970	Ware, S.	TN limestone outcrop plants, rhizome dormancy	Yes, 1972
1972	Ware, S.	TN limestone outcrop plants, soil type tolerance	-----
1973	Draper, Earl (Grad)	MD serpentine outcrop plants	-----
“	Pinion, Gary (Grad)	VA, TN, MD rock outcrop plants, soil type tolerance	Yes, 1990
1975	Monette, Roland (Grad)	VA CP forest succession	Yes, 1983
1976	Dewitt, Ridge (UG)	VA CP upland forests	Yes, 1979
“	Glascoek, Susan (UG)	VA CP small stream swamp forests	Yes, 1979, VJS
“	Johnson, Glenn (UG)	VA Peaks of Otter forests	Yes, 1982
1978	Clark, David (UG)	VA southern Piedmont forests	Yes, 1980, VJS
“	Parsons, Susan (Grad)	VA flooding & soil pH effects in CP swamps	Yes, 1982

During my early years in Virginia the VAS Virginia Flora Committee held a fall “progress update” meeting in addition to its spring meeting at the VAS. Flora Committee members Harvill and Morrow encouraged all scientists interested in the plant life of Virginia to participate in those meetings, even if they weren’t on the Flora Committee. It was at one of those fall meetings that I heard plant ecologist Gerald Levy of Old Dominion University describe a method of forest sampling he was using in a study he was doing on the Eastern Shore of Virginia, and that he and his Old Dominion University faculty colleague Frank Day were later to use in the Dismal Swamp. Thereafter my students and I adopted Levy’s very efficient sampling method, and his method shaped my and my students’ forest ecology research for decades. In retrospect I wish Levy had submitted a paper on this method to the *Virginia Journal of Science*; my students and I could have cited such a paper many times in our future publications.

This is only one example of how right Gwynn Ramsey was when he said that Virginia Academy of Science meetings were a good place to meet and learn from other botanists across Virginia. During my active years in the VAS, I met botanists from most colleges in the state through the paper sessions at the annual meetings, when either their students or they gave talks or exhibited posters, or at the fall meetings of the VAS Virginia Flora Committee. I also met botanists from Commonwealth of Virginia’s forestry, conservation, and environmental departments, from a few Federal agencies, and from private consulting firms. Each year I (and my students) learned new things about taxonomy, ecology, and other aspects of the biology of Virginia’s plants from the presentations of these other botanists. Further conversations with these scientists about their findings and their methods often influenced the approach my students and I took toward our own endeavors.

These regular interactions with other botanical scientists were enriching experiences decade after decade.

By the end of my first decade in Virginia, the studies my students and I had done revealed that beech was very important in the upland hardwood forests of the Coastal Plain, potentially as important in Virginia as in the beech-rich classic Southern Mixed Hardwood Forest that supposedly extended northward only to southern North Carolina. I wrote up a manuscript summarizing our conclusions and submitted it to the *Virginia Journal of Science* (*VJS*). By 1978 only one of my students (Ridge DeWitt, Table 1) had yet had a manuscript accepted by a botanical journal, so for the studies of the other students, I initially followed the usual tradition of citing unpublished work by the name of the researcher followed by the abbreviation “unpubl.”, as in “(R. Monette, unpubl.)”. Then I realized that each student’s published abstract in the *Virginia Journal of Science*, though only one paragraph, gave much more information about their findings than I could include in an overview manuscript. So, with the journal editor’s permission, I abandoned the “unpubl.” notation, and in the final paper (Ware 1978) formally cited the published *VJS* abstracts for students Monette, Glascock, Clark, and Johnson (Table 1).

This paper also cited the *VJS* abstracts of two other William & Mary students, George Diggs and Frank Watson, who in the abstracts of their VAS talks had commented on forest composition in the areas of Virginia where they had done floristic studies under the direction of plant taxonomist Gus Hall. Gus Hall had many research students over the years, most of whom worked closely with William and Mary herbarium curator Donna Eggers Ware. They both encouraged all of those students to make presentations at VAS meetings, so for decades my students regularly presented their plant ecology papers in the same sessions where fellow William & Mary students presented papers on plant taxonomy. And some of those plant taxonomy students, like some of my students, ultimately submitted their paper for publication in the *Virginia Journal of Science* (Diggs and Hall 1981; Corcoran-Diggs and Hall 1981).

Though I was particularly interested in forests of the Virginia Coastal Plain, students often wanted to do studies of forests outside the Coastal Plain, especially of forests they had observed near their homes while growing up. This began with Glenn Johnson, who studied the forests of the Peaks of Otter (in the Blue Ridge) near his home (Table 1), and David Clark, who studied southern Piedmont forests in his home county of Pittsylvania (Table 1). John Kasmer extended the reach even farther, with his study of forests near his home in the southeastern Piedmont of Pennsylvania (Table 2).

The Second Decade

In my second decade in Virginia the students who worked with me continued to choose forest ecology studies rather than rock outcrop ecology studies (Table 2), extending their geographic coverage from spruce and fir forests on high mountains (Rick Rheinhardt,

Chuck Bailey) through lower mountain slope hardwood forests (Doug Blackman, Margaret Farrell) to Piedmont hardwood forests (John Farrell, unrelated to Margaret Farrell) and Coastal Plain pine stands (Cindy Larsen Rice). Two of these students later published papers on their work in the *Virginia Journal of Science* (Rice and Ware 1983; M. Farrell and Ware 1988; Ware and M. Farrell 1998).

In the early years the Virginia Academy of Science annual meeting occurred before the end of the spring semester at most colleges. That made it easy for William and Mary faculty and research students to carpool together from our campus to the VAS meeting site of that year. By the 1980s attendance at the combined Academy and Junior Academy meetings was so large that most colleges couldn't provide enough meeting rooms while their own spring semester was still in session. Therefore, the VAS had to begin scheduling its meetings after college spring semesters had ended. Thus, by the time the meetings occurred, undergraduate students who planned to present papers had already dispersed to their hometowns for the summer. In-state students who lived not too far from the meeting site could usually arrange their own transportation, but for out-of-state students who had already graduated, distance was an obstacle to their returning to Virginia to make their VAS presentation.

Table 2. Second Decade (1979—1989) of Virginia Academy of Science presentations (12 talks, 9 on Virginia plant ecology). State abbreviations in bold type; Veg. Symp. was a symposium on vegetation of Virginia organized by the Botany Section of the Academy; SMHF = Southern Mixed Hardwood Forest of the Coastal Plain from TX to NC; see Table 1 for other abbreviations.

Year:	Presenter:	Subject:	Later Publication?
1979	Blackman, Doug (UG)	VA Blue Ridge forests & moisture	Yes, 1982
1981	Kasmer, John (UG)	PA hardwood forests	Yes, 1984
	“ Rheinhardt, Rick (Grad)	VA Mt. Rogers, Whitetop forests	Yes, 1984
	“ Ware, S. (Veg.Symp.)	VA CP forests in Virginia	-----
1982	Rice, Cindy Larson (UG)	VA pine forests in CP	Yes, 1983, VJS
1986	Ware, S.	Reanalysis of original SMHF data	Yes, 1983
1987	Farrell, Margaret (UG)	VA So. Blue Ridge Forests	Yes, 1988, VJS 1998, VJS
	“ Ware, S. (& P. Redfearn)	MO Ozark hardwood forests	Yes, 1992
1988	Farrell, John (UG)	VA northern Piedmont Forests	Yes, 1991
	“ Ware, S.	VA soils & plant distribution	-----
1989	Bailey, Chuck	VA spruce forests, Highland Co.	Yes, 1990
	“ Ware, S.	VA lack of hickory in “oak-hickory” forests	Yes, 1992

Most out-of-state students, and some in-state students living a long way from the VAS meeting site for that year, avoided the problem by choosing not to present their research at a VAS meeting. But some were more ambitious. In 1987 Margaret Farrell (Table 2), recognizing that travel back from New York was not possible, persuaded a friend in Williamsburg to let her stay at that friend's house for two whole weeks after her graduation, so she could ride with me to the meeting site to present her paper. In the third decade, Elizabeth Wolff (Table 3) scheduled her talk with the intent of returning to Virginia, but when travel back to Virginia from her home in Pennsylvania proved impractical, sent me copies of her slides and text a week ahead of time and asked me to present the paper on her behalf. Alex Cole (Table 3), who lived in far northern Virginia, was driving down to Old Dominion University to present his paper when his car broke down in Richmond. He had no way to get the rest of the way to ODU. In that day before everyone had a cell phone, he had no way to let me know he wasn't going to make it. So it was not until the time came for his presentation that I realized he was absent. There were no copies of his slides or his planned text for me to consult, but I did not want to see his talk canceled, which might mean his abstract would not be published. So, based on my memory of his senior Honors thesis, I drew diagrams on the blackboard to illustrate his findings and came up with an off-the-cuff description of his findings and his conclusions.

Students often told me that they were very nervous before their VAS talks, anxious about how they would come over to an audience of scientists. Before making this presentation on Alex Cole's behalf, I felt no nervousness, since I didn't expect to give a talk until one minute before time for it. But I was very, very nervous during the talk, because as I started drawing each diagram, or began each statement about the data, I was not sure just exactly how what I drew or what I said was going to come out!

The Third Decade

In 1990, soon after the beginning of my third decade in Virginia, the Botany Section of the VAS for the second time organized a symposium on the vegetation of Virginia (Virginia Vegetation Symposium II), with participants invited to submit afterward a manuscript based on their presentation to the *Virginia Journal of Science*. At the earlier symposium in 1981 (Table 2), I had presented an updated summary of the work done by my students and me in the Coastal Plain, much of it already covered in the 1978 *VJS* paper. But by 1990 several students had done forest studies in the Piedmont, and it was now possible to present a comparison of Piedmont and Coastal Plain hardwood forests at this second vegetation symposium (Table 3). In the paper based on this talk published in the *Virginia Journal of Science* (Ware 1991), it was possible to cite the already published papers of SEVEN William & Mary students who had first presented their studies to the scientific world in talks at Virginia Academy of Science meetings.

Not all names of presenters in this third decade (Table 3) are my students. Steve Adams was a faculty member at Dabney S. Lancaster Community College (now Mountain

Gateway Community College) who often gave talks at VAS meetings. He and Steve Stephenson, at that time a faculty member at Fairmont State College in West Virginia (now at the University of Arkansas), had combined data the two of them had gathered on beech-rich forests of the mountains of Virginia with data my students and I had gathered on beech-rich forests in the Coastal Plain. Based on these combined data, they produced a paper on the role of beech in forests of the Mid-Atlantic region and made me a co-author on the work. In 1997 Adams presented a talk on this work at the Virginia Academy of Science meeting, and that same year Stephenson presented a talk on this work at the meeting of the West Virginia Academy of Sciences. Even though I did not give a presentation in 1997, thanks to them I was a co-author on two abstracts that year, one published in the *Virginia Journal of Science* (vol. 48, p. 93), and one in the *Proceedings of the West Virginia Academy of Sciences* (vol. 69, p. 1).

My students and I normally gave VAS presentations and posters through the Botany Section (or before its creation, the Biology Section). However, Heather Sahli (Table 3) had focused on trees as oviposition hosts for periodical cicadas, so she was the first of my students to present her poster to the more recently created Natural History and Biodiversity Section, where insect papers were often presented. She was also one of three students from that third decade to choose the *VJS* as an outlet for their scholarly work: Sahli (1990), Elizabeth Wolff (1994), and Peter Elstner (2001) all had their papers published in the *VJS*.

Table 3. Third Decade (1990—1999) of Virginia Academy of Science presentations (10 talks or posters, 8 on Virginia plant ecology). State abbreviations in bold type; see Tables 1 and 2 for other abbreviations.

Year	Presenter	Subject	Later Publication?
1990	Ware, S. (Veg. Symp. II)	VA CP vs. Piedmont forests	Yes, 1991, VJS
1991	Cazier, Penny (Grad)	VA lower CP hardwood forests	Yes, 2001
	“ Crone, Elizabeth (UG)	VA Northern Neck forests	-----
1992	Ware, S.	MO rock outcrop plants & soils	Yes, 2011
1993	Cole, Alex (UG)	VA central Piedmont forests	Yes, 1997
	“ Wolff, Elizabeth (UG)	VA Fall Line as forest boundary	Yes, 1994 VJS
1997	Adams, Steve	VA mid-Atlantic beech forests	Yes, 2003
	(& S. Stephenson & S. Ware)		
1999	Sahli, Heather (UG) (poster)	VA tree species used by cicadas	Yes, 2000, VJS
	“ Elstner, Peter (UG)	VA ice storm effects on forests	Yes, 2001, VJS
	“ Crow, Susan (UG) (poster)	MO Ozark rock outcrop plant & soils	Yes, 2007, 2009

The Fourth Decade

In my fourth decade (Table 4), as in the third, not all presenters listed were my students. David Lawrence of the Virginia Department of Environmental Quality combined data he had from the mountains of Virginia with data from both spruce-fir forests and hardwood slope forests gathered by Adams, Stephenson, and my students and me. He made the three of us his co-authors. During that same decade, after I had spent a sabbatical year at the University of Arkansas, my students and I were working closely with Ed Dale of that university doing computer analysis of Mississippi River swamp forest data that Dale and his co-workers had gathered. While those out-of-state studies may have been less interesting to plant ecologists focused on Virginia, the VAS still presented the opportunity for undergraduates like Ben Waitman (Table 4), though he worked on non-Virginia data, to get a first experience making a public presentation to fellow scientists.

While none of my students from the fourth decade published a paper in the *VJS*, it wasn't because none of them tried. But the *Virginia Journal of Science*, like all good journals, has each submitted manuscript reviewed by outside reviewers, and it accepts only those papers that pass muster under peer review. Alas, the only manuscript submitted there by one of my students that decade was declined by the *VJS* reviewers and editor.

A highlight during the fourth decade, however, was when Kjarstin Carlson-Drexler's 2007 presentation on forest damage from Hurricane Isabel (Table 4) was chosen as the best student paper for that year in the Botany section. She was the first of my students to win that distinction, so that year I basked in the reflected glory of Carlson-Drexler's achievement.

Table 4. Fourth Decade (2000—2009) of Virginia Academy of Science presentations (9 talks, 5 on Virginia plant ecology). State abbreviations in bold type; see Table 1 for other abbreviations.

Year	Presenter	Subject	Later Publication?
2000	Sahli, Heather (UG)	MO Ozark <i>Sedum</i> competition	-----
2000	Lawrence, David (& S. Adams, S. Stephenson, & S. Ware)	VA montane forests	-----
2002	Ware, S. (& Ed Dale)	AR swamp forests & flooding levels	Yes, 2004
2003	Alexander, Sarah (UG)	VA Lee Park forests, Petersburg	-----
"	Kribel, Jake (Grad)	VA CP permanent forest plots	Yes, 2011, 2014
2007	Carlson-Drexler, Kjarstin (Grad)	VA hurricane damage in forests	-----
"	Waitman, Ben (UG) (& Ed Dale)	MS, LA, AR Miss. R. swamp forests	Yes, 2007
2008	Ware, S.	MO soil tolerance in <i>Crotonopsis</i>	Yes, 2010
"	Carlson-Drexler, Kjarstin (Grad)	VA post-hurricane forests	-----

The Fifth and Sixth Decades

After I retired from teaching in 2009, I was no longer in a position to attract and direct budding research students, so at the beginning of my fifth decade in Virginia, an end came to the series of William & Mary plant ecology students presenting their first papers at the VAS. Further, I was usually in Missouri on the family farm in the spring when the Academy held its annual meeting, so I also was nearly always absent from the annual VAS meetings. However, 2018 was the 50th anniversary of the first year I attended a meeting of the VAS, so I re-arranged my travel schedule so I could attend the meeting in at Longwood University. It had been Longwood's well-known plant taxonomist faculty member, Alton Harvill, long since deceased, who had so warmly welcomed me to Virginia 50 years before. At that Longwood meeting I gave my first VAS talk (Table 5) in ten years. At that year's annual luncheon for Fellows of the Virginia Academy of Science, I had the pleasure of seeing VAS Fellow Carolyn Mohler Conway, whom I had heard give her first VAS talk 50 years before, sitting at a nearby table!

In 2023, my sixth decade in Virginia, the VAS held its 100th anniversary meeting at the College of William and Mary, the college where the Academy had been founded one hundred years earlier (Staggers 1968). Again, I rearranged my travel schedule so I could be present. In response to an invitation, I gave a talk on the role of the Virginia Academy of Science in my career as a plant ecologist (Table 5). What a pleasure it was, remembering the adventures my students and I had over the decades at annual meetings of the VAS! As can be seen from Tables 1 through 5, the Virginia Academy of Science has been an integral part of my career as a teacher and researcher for over half of its first 100 years. May it continue to serve Virginia scientists and their students in this way in the century to come!

Table 5. Fifth Decade (2010—2019) and Sixth Decade (2020—2029) of Virginia Academy of Science presentations (2 talks, 1 on Virginia plant ecology). State abbreviations in bold type.

Fifth Decade: 2010—2019			
Year	Presenter	Subject	Later Publication?
2018	Ware, S.	VA 1607 forests vs. 2007 forests [This was the 50 th year since S. Ware attended his first Virginia Academy of Science meeting]	-----
Sixth Decade: 2020—2029			
Year	Presenter	Subject	Later Publication?
2023	Ware, S.	Memories of six decades in the VAS [This was the 100 th anniversary of the founding of the Virginia Academy of Science]	Yes, 2024 VJS

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Virginia Academy of Science

101st Annual Meeting
May 25-26, 2023



Celebrating the Centennial

1923 - 2023

Annual Meetings

The Academy hosts two annual meetings, one in the Fall in October and one in the Spring during May. The Fall Meeting is an Undergraduate Research Proposal Competition, during which students from public and private Virginia colleges and universities, present proposed research during an interactive poster session. Exceptional presentations are awarded small grants from the Academy to complete their projects. Students who receive grant funding are expected to present their research at the subsequent Annual Meeting.

The Spring Meeting is a traditional scientific meeting. The VAS has hosted an Annual Meeting for 101 years as of 2023. The first meeting was held in 1923 at William and Mary and the Academy will celebrate 100 years of science advocacy also at William and Mary. Students, scientists, and citizen scientists from over thirty Virginia organizations and universities regularly participate in this meeting, presenting research findings and ideas that span multiple scientific disciplines in oral and poster formats.

The Virginia Junior Academy of Science

The Virginia Junior Academy of Science (VJAS) is a national model for the junior academies and has been ranked among the top three in the nation for over two decades. Through the VJAS and mentoring programs, the VAS annually reaches over 40,000 Virginia middle and high school students. Hundreds of volunteers make it possible for Virginia secondary students to experience authentic research and present their findings at the VJAS Annual Symposium.

A Tradition of Excellence, A Commitment to Action

Join the Virginia Academy of Science

Support the Virginia Academy of Science

VAS President's Welcome

May 2023

To VAS and VJAS Members,

Welcome to the 101st Annual Meeting of the Virginia Academy of Science (VAS), which we are holding this year at Williamsburg, Virginia, at William & Mary.

On April 26, 1923, University of Virginia biologist Ivey F. Lewis convened the first meeting of the Virginia Academy of Science at the College of William and Mary. Since then, the Academy has supported scientific research, sought to improve science education, and encouraged fellowship among scientists, undergraduate students, graduate students, and citizen scientists throughout the state. An official affiliate of the American Association for the Advancement of Science since 1926, the VAS has been at the forefront of science, scientific research and science education in Virginia for a century.

Our mutual interests draw Academy members from throughout Virginia and beyond. If you are not currently a member of the Virginia Academy of Science, please consider joining. Membership is open to any individual with an interest in scientific research and science education. We have special rates for students. Each spring, we return to our professional home at this Annual Meeting to share findings, compare experiences, and renew friendships.

While you are enjoying this year's meeting, please take time to learn more about the VAS and VJAS, and consider joining our group of volunteers. We have an open door to all those who wish to serve, and the possibilities are diverse. Contact President-elect Conley McMullen or speak with another Academy officer if you are interested.

Meanwhile, I hope that you will enjoy all of our presentations, invited speakers, and social events including the VAS Banquet on Thursday evening. The Annual Meeting is a great time to form networks, make friends, encourage young scientists, and discover new opportunities in research, education, and service in the name of science and science education.

Thanks so much for making our Annual Meeting a success!

Sincerely,

Deborah Neely-Fisher,
Assistant Professor, Biology,
Reynolds Community College

About William & Mary

History & Traditions

Not many universities can say they've canceled classes because 'the British invaded.'

William & Mary is the second-oldest institution of higher learning in America. While our original plans date back to 1618 — decades before Harvard — William & Mary was officially chartered in 1693.

Founded by Royal Charter

On February 8, 1693, King William III and Queen Mary II of England signed the charter for a "perpetual College of Divinity, Philosophy, Languages, and other good Arts and Sciences" to be established in the Virginia Colony as "The College of William and Mary in Virginia."

Workers began construction on the Sir Christopher Wren Building, then known simply as the College Building in 1695, before the town of Williamsburg even existed. Over the next two centuries, the Wren Building would burn on three separate occasions, each time being re-built inside the original walls. That makes the Wren the oldest college building still standing in America, and possibly the most flammable.

Alma Mater of the Nation

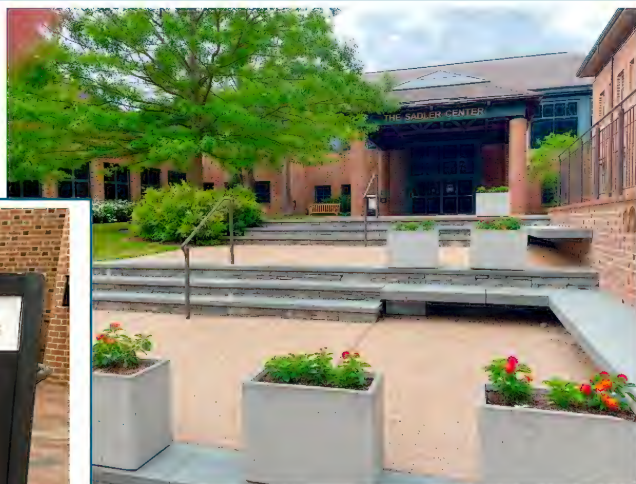
William & Mary has been called the Alma Mater of the Nation because of its close ties to America's founding fathers. A 17-year-old George Washington received his surveyor's license through W&M and would return as its first American chancellor. Thomas Jefferson received his undergraduate education here, as did presidents John Tyler and James Monroe.

W&M is famous for its firsts: the first U.S. institution with a Royal Charter, the first Greek-letter society (Phi Beta Kappa, founded in 1776), the first student honor code, the first college to become a university and the first law school in America.

**Photos from the
Campus of William & Mary
on May 25, 2023**



Sign welcoming attendees to the Meeting --
by WS Bousquet



The Sadler Center on the campus of William
& Mary – by WS Bousquet



Campus of William & Mary –
by WS Bousquet



Staircase in the Sadler Center on the campus of William
& Mary – by WS Bousquet

VAS 101st Annual Meeting Program Committee

VAS Vice President and Program

Chair R. Parrish Waters

University of Mary Washington, Fredericksburg, VA

Section Secretaries/Program Officers:

Agriculture, Forestry and Aquaculture.....	Vacant
Archaeology.....	Inactive
Astronomy, Mathematics and Physics.....	Joseph D. Rudmin
Biology.....	Deborah O'Dell with Microbiology and Molecular Biology
Biomedical and General Engineering.....	Shawn DiRocco
Botany	Joshua A. Kincaid
Chemistry	Thomas C. Devore
Data Science, Computing and Statistics.....	Yen-Hung (Fred) Hu
Education.....	Melani Loney
Entomology.....	Laura McHenry
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Material Sciences.....	Costel Constantin
Medical Sciences:.....	Rama Gunta
Natural History and Biodiversity.....	Brooke Haiar
Psychology	Abby Braitman
Structural Biology, Biochemistry and Biophysics.....	C. Berndsen

SCHEDULE OF EVENTS

Virginia Academy of Science Thursday May 25 - Friday, May 26, 2023

VAS Headquarters: Sadler Center

Thursday, May 25		
8 am - 12 pm	VAS Preregistration Check-in and On-site Registration	Sadler Center-Foyer
8 – 9:55 am	VAS Poster Check-in and Set-up	Sadler Center- Chesapeake Ballroom
8 – 10:15 am	Breakfast, Coffee & Pastries	Sadler Center-Tidewater Ballroom
8 – 1:00 pm	VAS Section Morning Sessions	<i>See VAS Program for VAS Section Locations and Schedules</i>
9:00 am - 5 pm	VAS Poster Session <i>Poster authors will be present from 3:30 – 5 pm to discuss posters and answer questions</i>	Sadler Center- Chesapeake Ballroom

Thursday, May 25		
12:00 -1:pm	Group Drone Picture	Integrated Science Center
12:30 – 1:00 pm	VAS Section Business Meetings	Sadler Center – Tidewater Ballroom
1:00 – 2:00 pm	VAS Luncheon	Sadler Center-Tidewater Ballroom
2:00 – 3:00 pm	Negus Lecture	Sadler Center-Tidewater Ballroom
3:30 – 5:00 pm	VAS Poster Session <i>Poster authors will be present during this time to discuss posters and answer questions</i>	Sadler Center-Chesapeake Ballroom
3:00 – 5:30 pm	VAS Section Afternoon Sessions	See VAS Program for VAS Section Locations and Schedules
5:00 - 6:00 pm	Fellows Meeting	Sadler Center-James Room
5:00 –5:30 pm	VAS Poster Removal	Sadler Center - Chesapeake Ballroom
6:00 –7:30 pm	VAS Banquet and Installation of 2023-2024 VAS Officers	Sadler Center-Tidewater Ballroom

Friday, May 26		
9:00 am – ~11:30 pm	VAS Council Breakfast and Meeting (NOTE: All VAS Council Members are expected to attend this meeting.)	Sadler Center- Tidewater Ballroom

**Photos from
events
at the
Centennial
Annual Meeting**



**Before Everything REALLY Takes Off! Executive Officer Phil Sheridan and Vice President Parrish Waters -
by Phil Sheridan**



Past VAS Presidents: Mike Price and Gary Isaacs- by Phil Sheridan



Poster Session – by Phil Sheridan



2023 VAS Scholarship Winners with VAS President Conley McMullen –
by Phil Sheridan



Physics Demonstration by Al Tobias - by Craig Good

**Luncheon
Photos by
W. S.
Bousquet**



Virginia Academy of Science

2023

Sidney S. Negus Memorial Lecture – VAS Academy Conference

Thursday, May 25, 2023
2:00 pm
Sadler Center,
Tidewater Ball Room

John Clayton as portrayed by Richard Cheatham



Richard (Dick) Cheatham is a consultant specializing in harvesting classic and recurring lessons in human achievement from History for contemporary application. A graduate in History and Liberal Arts from the Virginia Military Institute, he was a professional television and newspaper journalist for years before returning to history as a professional speaker employing the character portrayal method through his speakers bureau, Living History Associates, Ltd.

He customizes his presentations for each unique audience teaching and inspiring through this provocative form of surreptitious education. In addition to John Clayton, John Rolfe, Captain Meriwether Lewis, President John Tyler and others have been illuminated by Mr. Cheatham over the past four decades all over the USA and internationally.

For the Negus Lecture he will portray the 18th century colonial Virginia Botanist John Clayton, co-author of the *Flora Virginica*, the first flora of Virginia last published in 1762. The modern *Flora of Virginia* was published 250 years later in 2012, the year in which Cheatham first revived John Clayton for events. Clayton was involved in several contemporary scientific societies and in 1773 founded and was first president of the "Virginia Society for the Promotion of Useful Knowledge." He is one of the four scientists featured on the seal of the Virginia Academy of Science.

At the conclusion of the Clayton portrayal, Cheatham as himself will highlight the many accomplishments of the VAS since its founding one hundred years ago in 1923.

**Photos of the Sidney S.
Negus Memorial Lecture
with Botanist John Clayton
portrayed by Richard
Cheatham, May 25, 2023**



Photo by J. O'Brien

Photos by
W.S.
Bousquet





Virginia Academy of Science at 100:

A Presentation Given to the Chemistry Section of the Virginia Academy of Science

Thomas C. DeVore
Secretary, Chemistry Section, Virginia Academy of Science
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Harrisonburg VA 22807

Abstract

While I have not been an active member of the Virginia Academy of Sciences (VAS) for all of its 100 years of existence, I have seen many changes in VAS during the more than 30 years that I have been an active member. This paper, delivered at the VAS Annual Meeting at the College of William and Mary on May 25, 2023, recalls some of the outstanding scientists in Virginia that I have had the privilege of knowing and who have led and lived out the goals of VAS. They inspired me to try to live up to the high standards established by the VAS for promoting science in Virginia.

Introduction

Although I do not remember when the first meeting occurred at which I served as Secretary of the Chemistry Section of the VAS, the 72nd Annual Meeting held May 18-20, 1994, at James Madison remains a vivid memory. I was on the Arrangements Committee and Secretary of the Chemistry Section for this meeting. Incidentally, my daughter was planning to be married on May 21 that year, and my wife Doreen was not happy that I was spending most of my time at the VAS instead of preparing for the wedding. The good news is that my daughter was married, and I lived. Doreen later became a regular participant in the VJAS, and we attended many meetings together, often staying in a dorm room on site. It was announced that the VAS meeting would likely be held at JMU every other year to take advantage of the only classroom building in the state large enough to hold all of the VJAS presentations in one location at that time. The tradition in the Chemistry Section was to have the secretary be from the host institution, so I knew then that I would never get out

of the officer rotation. I haven't. Fortunately, I have had the assistance of many fine scientists serving as officers and advisors to help me. This collaboration has produced many pleasant memories. This paper recalls a few of the scientists who were special to me, and there were many other regular attendees too numerous to mention who could have been included.

The Beginning

According to the VAS website (vacadsci.org), the VAS was established in 1923 at a meeting held at the College of William and Mary (no, I was not there). The photograph of the attendees at the 1928 meeting held on May 3 and 4 at the College of William and Mary (Figure 1) indicates that over 100 people attended, showing strong support for VAS from the beginning. There are some clear differences in the tone of the meeting indicated by this photograph compared to any taken during the 2023 Annual Meeting. Participants dressed more formally in 1928, suggesting that the meetings were also more formal then. While there are some women in the 1928 photograph, the attendees were mostly men who appeared to be of European ancestry. A photograph from the 2023 meeting would contain more women and show more ethnic and racial diversity. But one aspect would be the same. Everyone was there to discuss the latest science, to renew old acquaintances, and to make some new friends.

The vision established in 1923 is alive and well in 2023. The Academy's goals as presented on the VAS website and below, are reflected in my interactions with members over the past 30-plus years.



Figure 1: Attendees of the 1928 VAS meeting (vacadsci.org/about-vas/)

Goal: The Virginia Academy of Science is dedicated to the advancement of science

The VAS goal of advancing and promoting science to the public was established early in its existence when members of the VAS submitted testimony in *The State of Tennessee v. John Thomas Scopes* trial (a.k.a. the Scopes Monkey Trial) that took place from July 10-21, 1925. Two scientists with connections to the University of Virginia -- biology professor William Allison Kepner (Figure 2) and geologist Wilbur Armistead Nelson (Figure 3) -- were part of the team of experts assembled to testify for the defense. Professor Kepner would later become the 11th president of the VAS.

Many have carried on the legacy of explaining science to the public. R Gerald Bass (Figure 4) professor emeritus at Virginia Commonwealth University, 2000 VAS Fellow, and retired VAS Executive Officer is a stellar example of an Academy member who volunteered much time to promote chemistry and improve chemical education through several venues. Jerry was an American Chemical Society (ACS) Councilor from the Virginia Section of the ACS for 22 years. During that time, he served on many subcommittees and took an active role in shaping the governance of ACS. He had leadership positions on the planning committees for running the Southeastern Regional ACS meetings (SERMAC) held in Richmond in 1969, 1991, and 2011. For his work with ACS, Jerry was named as an ACS Fellow in 2015. The Virginia Section ACS's most prized award, the R. Gerald Bass Award for Exceptional Service, was named in his honor. Jerry is an avid promoter of science and supporter of the VAS. His influence is still felt throughout Virginia.

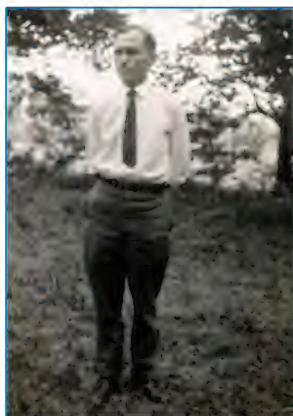


Figure 2:
William Allison Kepner



Figure 3:
Wilbur A. Nelson



Figure 4:
R. Gerald Bass

Two other VAS members that I knew who worked tirelessly to promote science to the general public were Jim Wightman of Virginia Tech (Figure 5) and D. Rae Carpenter of Virginia Military Institute (Figure 6). I first met Jim at a VAS meeting held at Virginia Tech decades ago. Although an award-winning scientist and educator, Jim was also a master showman. One of the more memorable presentations at the VAS Annual Meeting was a joint presentation by Jim and his son Bill, a JMU Art History faculty member. Bill discussed the aesthetics of the chemistry demonstrations while Jim was doing the demonstration live. I have seen Jim give many presentations in many locations since then. He is an effective ambassador and did much to promote chemistry to the public.

D. Rae Carpenter (1973 VAS Fellow) was renowned for explaining physics to the public. He is best remembered for the programs he did with his VMI colleague Richard B. “Dick” Minnix. They achieved an international reputation for their short courses on physics produced as lecture-demonstrations that they presented in schools under the title, “Phun with Physics.” They made their demos available to the public by publishing “The Dick and Rae Physics Demo Notebook,” which contains 650 physics demonstrations and is still being sold.

Both had an impact on my career. While not up to their level, I was inspired to join these two physicists in the “JMU Physics is Phun; The Chemist is Crazy” traveling road show that made presentations at several schools in the state. I later did over 100 chemistry demo shows on various topics at schools and civic organizations alone or with Larry White as part of the “Mr. White Wizard and Dr. Science Demo Show.” Although I have largely retired from doing traveling demo shows, events like Chem Fest currently held at JMU under new leadership and science presentations in schools are still being done by VAS members. The spirit of spreading the joy of science to younger audiences that Jim and Rae exemplified is still alive and well.



Figure 5: Jim Wightman



Figure 6: Col. D. Rae Carpenter Jr.

Goal: VAS members are active in STEM research and education

Every VAS meeting is filled with talks and posters describing the original research being done by members of the VAS. A quick perusal of the abstracts from any meeting published in the *Virginia Journal of Science* shows the wide variety of research being done by Academy members. Although most are discipline-based research projects from the traditional areas of science, some are unique and show the creativity of the VAS members. One memorable example was the talk given during Operation Desert Storm by a VAS member working at the Naval Research Labs. He reported on making environmentally friendly temporary landing pads using household chemicals that reduced the dust levels that were fouling the helicopter engines as they landed and took off in the desert. I learned about many topics I did not know I was interested in from attending the variety of presentations given at VAS meetings.

Each recent VAS Chemistry Section session has included presentations by undergraduate and younger graduate students. Thomas O. Sitz (Figure 7) from Virginia Tech (VAS president 1995-96) was instrumental in advancing the idea that VAS should be a place where younger scientists are welcomed and given an opportunity to present their research. Although Tom was a regular attendee of the spring meetings, he often had his students do the presentations. A remembrance of his contributions to the VAS Chemistry Section was included in the program at the 2011 meeting. Tom was a mentor to me, and his calm demeanor was a stabilizing influence. The Fall Undergraduate Research Meeting that provides support to undergraduate researchers is a continuation of this vision of supporting young scientists.



Figure 7: Thomas O. Sitz

When most VAS members think of promoting science education, they think of the Virginia Junior Academy of Science (VJAS). According to the VAS website, the first meeting of the VJAS was held on May 3, 1941, with more than 200 people in attendance. My memories of VJAS relate to judging in competitions organized by VJAS Director Susan Booth (2009 VAS Fellow) (Figure 8). My late wife was also an active participant in the VJAS. Once she no longer felt competent to judge after her favorite category (Consumer Science) was removed from the categories, she undertook other responsibilities including serving as Susan's "go-fer" during the competition. Although I do not know how many of the students who have competed in the VJAS have gone on to become scientists, each has learned much about doing measurements carefully, making observations, writing reports, and giving presentations. Many also learned that while not everything works as planned, even a failure can be a learning experience.



Figure 8: Susan Booth with attendees at the VJAS

Goal: VAS members promote the advancement of science in the Commonwealth of Virginia by providing financial support for research projects and by providing a platform for dissemination of research results

Support for undergraduate research students through the fall meeting and to pre-college students through the VJAS has been noted above. The VAS also supports major scientific endeavors such as the Flora of Virginia Project. Started in 2001 in partnership with the Division of Natural Heritage of the Virginia Department of Conservation and Recreation, the *Flora of Virginia* was published in November 2012. It describes nearly 3200 plant species native to or naturalized in Virginia. Not being a botanist, I had nothing to do with the Flora of Virginia Project, but membership in the VAS provides a way to interact with scientists from other areas of expertise that I probably never would have met without the VAS. One such person for me is 2003 Fellow Marion B. Lobstein (Figure 9) who was a leader of this project. Marion had judged VJAS with my wife. They formed a friendship, and I met Marion through her; we have some shared memories from our interactions at the VAS meetings. I look forward to seeing Marion each year.

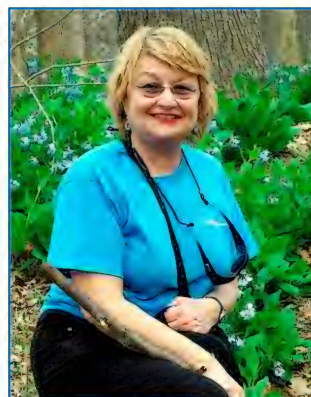


Figure 9: Marion B. Lobstein

Goal: VAS members come together at our annual meeting to share the results of their efforts over the year

While the Annual Meeting provides a chance for students to present their latest research, it is also a time for friends to come together. They share how things have gone during the past year, explore new ideas, and learn from fellow members. Several of the people that I look forward to seeing each year are featured above, but there are many more. One person who came annually to share his latest discoveries and impacted me was Roy L Williams from Old Dominion University (Figure 10). Roy's passion was investigating the chemical compounds in grapes and wine. He attended VAS every year and presented his latest discoveries to the attendees. I do not drink wine, but his enthusiasm for the antioxidants he discovered in wine that year was contagious.

Another person I look forward to seeing and have worked with closely is Edmund Moses Ndip from Hampton University (Figure 11). First and foremost, he is a dedicated teacher and theoretical chemist who has given presentations on non-linear optics at recent meetings. Secondly, he is an active member who deeply cares about the VAS. Edmund and I have traded being Chemistry Section officers for several years. He is currently the Chemistry Councilor. He has made my life easier by being ready to help where needed. He is a trusted advisor. I often turn to him for advice because I know his judgement is sound. I really appreciate all of the help he has given me. His dedication to the VAS is an example to us all.



Figure 10: Roy L. Williams



Figure 11: Edmund Moses Ndip

Special Thanks

The Covid pause disrupted the flow of the Chemistry Section. Because we did not hold elections, being an officer seemed like a lifetime appointment. Peter Njoki (Figure 12) and Vincent de Paul Nzuwah Nziko (Figure 13) from Hampton University have remained in officer positions and attended meetings held after Covid. Their dedication and support during this period are reasons to be optimistic about the future of VAS.



Figure 12: Peter N. Njoki



Figure 13: Vincent de Paul Nzuwah Nziko

Special thanks also to Executive Officer Emeritus Art Conway (2004 VAS Fellow) and Associate Executive Officer Emeritus Carolyn Conway (2007 VAS Fellow). They have helped me meet deadlines and answered hundreds of questions through the years. I don't know what I would have done without them.

There are many more persons that I have enjoyed meeting and learning from. To them I also say thank you.

Where to Next?

The goal of the Virginia Academy of Science is to promote science by doing public service, providing a meeting place to exchange ideas, promoting science education, funding projects, and educating the public. While the Covid pause has interrupted the momentum VAS had, the misinformation spread about Covid shows that our job is not finished. The need for accurate scientific information in solving problems facing society has not changed, and VAS is a reliable source of this information. On to the next hundred years.



Attendance at Virginia Academy of Science Meetings:

A Report of the Panel Discussion Held by the Chemistry Section of the Virginia Academy of Science

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Abstract

Since the attendance in the Chemistry Section at the Virginia Academy of Science (VAS) spring meetings has not returned to the numbers attending prior to the cancellation of the 2020 meeting due to the Covid pandemic, a roundtable discussion was held as part of the 2023 VAS Annual Meeting at the College of William and Mary on May 25, 2023 to discuss possible ways to increase attendance at future meetings. This is a report of the topics discussed and the suggestions made.

Introduction

The 2020 Virginia Academy of Science (VAS) Annual Meeting was scheduled to be held jointly with the Virginia Junior Academy of Science (VJAS) Symposium at James Madison University (JMU) in May 2020. This joint meeting's plan provides an example of the typical VAS meetings held before Covid. As the two VAS members on the planning committee for JMU, Conley McMullen and I did most of the planning for this meeting. For the VJAS Symposium, we had arranged for two award-winning women scientists in male-dominated fields to speak: Anca Constantin, a JMU astrophysicist who researches black holes, and Elizabeth Johnson, a JMU geology professor investigating the unexpectedly young volcanic rocks in western Virginia. The Sidney S. Negus Memorial Lecture was going to be very different from the typical Negus Lecture. Anca Constantin and JMU physicist Klebert Feitosa were going to discuss their campus radio program, "Demystifying

the Scientist,” a topic consistent with the VAS mission of educating the public about science.

Two chemistry sessions were planned. The traditional chemistry research session had 11 oral presentations, and a special joint chemistry education session organized by Prof. Barbara Reisner (JMU) had 15 additional speakers. In addition to the oral presentations, 16 poster presentations were submitted.

Unfortunately, Covid closed JMU in mid-March and the Annual Meeting was cancelled. Although in-person meetings have been held for the past two years, we have not recovered from the Covid shutdown and attendance has been poor, at least in chemistry. The roundtable discussion held as part of the Chemistry Section meeting focused on what VAS could do to encourage attendance at future meetings. There was strong sentiment from the attendees that more attendance is needed to justify the time and expense of attending VAS meetings. They felt finding ways to convince more members to attend the meeting should be given the highest priority. The suggestions made during this discussion are provided below. Most are presented without comment since a detailed analysis of the feasibility on implementing each suggestion was not undertaken.

Meetings

Traditionally, the VJAS/VAS joint meetings have been held on university campuses in mid-to-late May when universities are not in session. The empty dorm rooms provided housing for the VJAS students and simplified the logistics of managing the several hundred high school students who attended the VJAS. Having the meetings together allowed VAS members to judge the VJAS and then stay for the VAS meeting. During the past two years (2021, 2022), the VJAS has met separately online via Zoom. Roundtable participants suggested that the VAS also consider offering an online option. It was further suggested that the VAS consider holding a joint meeting with some other professional organization to provide a more diverse program that would attract more people to attend.

There was considerable sentiment, especially by the students, that the spring VAS meeting should be moved from late May to April while the colleges and the universities are still in session. This change would make it easier to convince students, especially undergraduate students at the host institution, to attend the meeting and present their research. There was no discussion about the potential logistical problems of finding enough empty rooms to hold the VAS sessions while classes are in session, or of the feasibility of holding the meeting on a weekend when classes are not in session.

There was interest in evaluating the student talks via video. The VJAS has routinely provided feedback about student presentations, but other than a few awards, the VAS has not done so.

Vendor Show

It was recommended that VAS include a vendor show to increase interest in the meetings. This opportunity could also provide some revenue. The reality that we will probably need more attendance to attract vendors to attend was recognized.

Membership Dues

While it was generally agreed that all faculty mentors attending should be members of the VAS, there were questions about whether students should be required to become members to present their research and compete for awards. The main arguments for not having students pay dues was that most will not be active in VAS once they graduate, and not having to pay a membership fee for each student would enable mentors of larger research groups to bring more students. There was also some confusion about membership requirements for attending the meeting and winning an award. Participants recommended that a coherent policy be formed and advertised to the members.

Publicity

The largest complaint was that although 2023 was supposed to be a centennial celebration, there was almost no publicity about the events being planned as the Academy's normal lines of communication broke down. The recommendation was that information should be sent out in a timely manner. Since I am the liaison to most attendees in chemistry, this would be my job. Returning to the traditional practice of having the person scheduling the sections be from the host institution might be a way to improve communications with the site committee.

The roundtable group had some suggestions to increase interest in the meeting. They suggested communicating directly with the departments, and that in-person visits would probably be the most effective.

Promoting the traditional role of the VAS as a place where faculty members from around the state can meet and exchange ideas may also be a way to boost attendance. Programs like 4Va support projects by investigators from multiple intuitions. The VAS meetings would be an ideal place for various investigators to meet, discover common interests, and form collaborations.

Symposia and Roundtables

These topics were not discussed so this section of the report reflects my thoughts. The VAS advantage is that most members live within reasonable driving distances of the meeting, and it is relatively inexpensive to attend. As the planned chemical education

symposium scheduled for the 2020 VAS meeting showed, the right program on a timely topic of interest will attract scientists who do not regularly attend VAS meetings. Planning symposia around these topics could attract those wanting to learn about the topic. Also, since VAS has members from the various scientific disciplines, a multidisciplinary topic could be investigated from several different perspectives through a joint symposium. Having a targeted topic could help solve the complaint that there are no other papers in my area – a common excuse for not attending the meeting. It would require more advanced planning and better publicity to alert the members about the special programs.

Summary

Chemistry has held two roundtables since Covid. The first at Liberty University focused on teaching through Covid, while this session at William and Mary focused on the future of the VAS. The Liberty discussion was largely faculty as the students were not interested in the topic while the William and Mary discussion involved everyone. Both led to lively discussions. The exchange of ideas and experiences offered insights into problems and suggested solutions. While not discussed, I suspect there would be support for future roundtables if topics can be identified.

Although the number of people attending was small and the time was short, we were able to consider several possible options for increasing attendance at the spring meeting and moving VAS forward to regain the vitality it had before the Covid lockdown. While there were several good suggestions, we did not discuss the limitations and realities that must be addressed to actually implement them.



**Recognition of Carolyn Conway
by VAS Academy Council on May 26, 2023**

Motion presented on May 26, 2023 to the regular meeting of the Academy Council of the Virginia Academy of Science by Gary Isaacs, Past President, VAS:

This morning I want to present a motion to Council that Carolyn Conway be awarded the title of **VAS Associate Executive Officer Emeritus**.

This title change brings with it two main benefits for the Academy:

1. The title of VAS Associate Executive Officer Emeritus is meant to honor Carolyn for her selfless, dedicated, and pivotal role in sustaining the day-to-day operations of the VAS office, ensuring that the personal “face” of the Academy to the many Virginia institutions was welcoming and professional, and supporting the VAS Executive Officers in their tasks. By awarding Carolyn this Emeritus title, it ensures her continued “invited” input without adding the requirement (job description)-type participation. This role, like that of Art Conway (Executive Officer Emeritus) is an ongoing badge of honor awarded only to those whose life work has been and continues to be critically valued by the Academy.
2. The second benefit of this title change is that it would enable Council, at the direction of the current President and direction from the Executive Committee, to make clear administrative plans for the direction of the Academy for the next 100 years. By vacating the current Associate Executive Officer position, it provides a clear transition for Council to fill this role moving forward as they see fit.

Motion seconded.

Approved by unanimous vote of the Academy Council, and accompanied by a standing ovation in recognition of Carolyn’s many years of service to the Virginia Academy of Science.



Presidents of the Virginia Academy of Science, 1923-2023

Compiled by Woodward S. Bousquet
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Shenandoah University, Winchester, Virginia 22601, wbousque@su.edu

Presidents of the Virginia Academy of Science, 1923-2023
(Webb 2001) and (Virginia Academy of Science 2023)

1920s

1923-1924 Ivey F. Lewis
1924-1925 James Lewis Rowe
1925-1926 Robert E. Loving
1926-1927 J. Shelton Horsley
1927-1928 Donald W. Davis
1928-1929 William Moseley Brown
1929-1930 Garnet Ryland

1930s

1930-1931 L. G. Hoxton
1931-1932 I. D. Wilson
1932-1933 T. M. N. Simpson, Jr.
1933-1934 William A. Kepner
1934-1935 William T. Sanger
1935-1936 Ida Sitler
1936-1937 H. E. Jordan
1937-1938 D. Maurice Allan
1938-1939 Earl B. Norris
1939-1940 Ruskin S. Freer

1940s

1940-1941 Wortley R. Rudd
1941-1942 George W. Jeffers
1942-1943 Marcellus H. Stow
1943-1944 W. Catesby Jones
1944-1945 Robert F. Smart
1945-1946 Hiram R. Hamner
1946-1947 Arthur Bevan
1947-1948 Jesse W. Beams
1948-1949 Sidney S. Negus
1949-1950 Boyd Harshbarger

1950s

1950-1951 Guy W. Horsley
1951-1952 Paul Patterson
1952-1953 Lloyd C. Bird
1953-1954 Allan T. Gwathmey
1954-1955 Irving G. Foster
1955-1956 Walter S. Flory, Jr.
1956-1957 E. S. Harlow
1957-1958 William G. Guy
1958-1959 John C. Forbes
1959-1960 William M. Hinton

1960s

1960-1961 Wilson B. Bell
1961-1962 Horton H. Hobbs, Jr.
1962-1963 Jackson J. Taylor
1963-1964 Foley F. Smith
1964-1965 S. S. Obenshain
1965-1966 Roscoe D. Hughes
1966-1967 Stanley E. Williams
1967-1968 James W. Cole, Jr.
1968-1969 Paul B. Siegel
1969-1970 D. Rae Carpenter, Jr.

1970s

1970-1971 Maurice B. Rowe
1971-1972 Edward F. Turner, Jr.
1972-1973 Franklin F. Flint
1973-1974 Stanley Ragone
1974-1975 E. L. Wisman
1975-1976 Arthur W. Burke
1976-1977 W. Allan Powell
1977-1978 Ralph A. Lowry
1978-1979 Dale V. Ulrich
1979-1980 Vera B. Remsburg

1980s

1980-1981 Kenneth R. Lawless
1981-1982 Donald G. Cochran
1982-1983 Ertle Thompson
1983-1984 Harold M. Bell
1984-1985 Frank B. Leftwich
1985-1986 R. Gerald Bass
1986-1987 J. J. Murray
1987-1988 William L. Banks, Jr.
1988-1989 Stewart A. Ware
1989-1990 Michael Bass

1990s

1990-1991 Richard B. Brandt
1991-1992 Gerald R. Taylor, Jr.
1992-1993 Golde I. Holtzman
1993-1994 James P. O'Brien
1994-1995 Elsa Q. Falls
1995-1996 Tom Sitz
1996-1997 Dean Decker
1997-1998 Harold Marshall
1998-1999 Thomas W. Haas
1999-2000 John L. Hess

2000s

2000-2001 Rosemary Barra
2001-2002 Robert Willis
2002-2003 Ali I. Mohamed
2003-2004 Walter R. T. Witschey
2004-2005 Judy H. Niehaus
2005-2006 Robert W. Fisher
2006-2007 Donald A. Whitney
2007-2008 Werner Wieland
2008-2009 James H. Martin, III
2009-2010 D'Arcy P. Mays

2010s

2010-2011 Arun K. Verma
2011-2012 Michael H. Renfroe
2012-2013 Ralph Eckerlin
2013-2014 Deborah A. O'Dell
2014-2015 M. David Crosby
2015-2016 Conley K. McMullen
2016-2017 Deborah L. Neely-Fisher
2017-2018 Robert Atkinson
2018-2019 Woodward S. Bousquet
2019-2020 Gary D. Isaacs

2020s

2020-2021 Michael J. Wolyniak
2021-2022 Michael S. Price
2022-2023 Deborah L. Neely-Fisher
2023-2024 Conley K. McMullen

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Fellows of the Virginia Academy of Science

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Abstract

This article briefly summarizes the criteria for election of VAS Academy Fellows and lists all elected Fellows from inception through the Centennial Annual Meeting in 2023.

The Virginia Academy of Science recognizes significant contributions to science and to the Academy by the election of Academy Fellows. Fellows must be active members of the Academy and have contributed to science in one or more of the following ways: outstanding scientific research, inspired teaching of science, or significant leadership in the Academy.

VAS members are invited to submit nominations for Fellows to the Executive Officer of the Academy by October 1 of each year. The nominations require the signature of at least three members, and valid nominations are forwarded to the Awards Committee for review. The Awards Committee reviews the nominations and makes a recommendation to the Academy Council at its spring meeting. Those awarded Fellow status by a majority vote of the Academy Council are recognized at the yearly Annual Meeting, and biographical information is summarized in a subsequent publication of the *Virginia Journal of Science* and/or *Virginia Scientists*.

The first Fellows were recognized in 1970. Table 1 contains a list of all elected Fellows to date. No Fellows were selected in the years not listed. Being recognized as a Fellow is an outstanding recognition and the Academy looks forward to additional recognitions in the future.

Table 1: List of VAS Fellows, 1970 through 2022

1970

Jesse Wakefield Beams
John Campbell Forbes
Thomas E. Gilmer
Boyd H. Harshbarger
Roscoe D. Hughes
Clyde Young Kramer
J. Douglas Reid
William T. Sanger

1971

Robert C. Carter
Edward S. Harlow
Wilbert Harnsberger, Jr.
Alton M. Harville, Jr.
Sterling M. Heflin
George W. Jeffers
Harry G. M. Jopson
Everett L. Wisman

1972

Lynn De Forrest Abbot
Rodney C. Berry
Lloyd C. Bird
Robert P. Carroll
James W. Cole, Jr.
Walter S. Flory, Jr.
Mary E. Kapp
Paul B. Siegel

1973

D. Rae Carpenter, Jr.
Virginia C. Ellett
Susie V. Floyd
Antonio B. Niemeyer, Jr.
Edgar V. Russell, Jr.
Raymond L. Taylor

1974

Perry C. Holt
William T. Ham, Jr.
Leonard O. Morrow
Robert F. Smart

1975

Franklin F. Flint
Horton H. Hobbs, Jr.
Michael Kosztarab
Vera B. Remsburg
William E. Trout, Jr.
W. Peter Trower
Edward F. Turner, Jr.

1976

Miles E. Hench
Franklin D. Kizer
Russell J. Rowlett, Jr.

1977

Bernard R. Woodson, Jr.

1978

Blanton M. Bruner
Arthur W. Burke, Jr.
Herbert McKennis, Jr.
W. Allan Powell
Stanley Ragone

1979

S. Gaylen Bradley
Addison D. Campbell
William M. Hinton
William L. Mengebier
Maurice B. Rowe
Jackson J. Taylor
Ertle Thompson

1980

Dorothy Bliss
Elizabeth Jackson
Ralph A. Lowry
James W. Midyette
Helmut R. Wakeham

1981

Hubert J. Davis
Frank L. Hereford
Peter M. Mazzeo
Warwick R. West, Jr.

1982

Dale V. Ulrich

1983

Donald G. Cochran
Dallas W. Cocke
R. Dean Decker
Mario R. Escobar
Charles O'Neal
Martha L. Walsh

1984

Dawn Campbell
Frank Leftwich
J. J. Murray
Stewart Ware

1985

Edward A. Crawford

1989

Kenneth R. Lawless

1990

James H. Martin

1991

Martha K. Roane

1992

Richard B. Brandt

1993

I. J. Good

1995

Golde I. Holtzman
Gerald R. Taylor

1997

Donald R. Cottingham
James P. O'Brien

1998

Michael Bass
Elsa Q Falls

2000

R. Gerald Bass

2002

John Hess

2003

Marion B. Lobstein

2004

Rosemary Barra
Arthur F. Conway
Harold G. Marshall

2006

Robert A. Willis, Jr.

2007

Carolyn M. Conway

2008

David G. Elmes

2009

David G. Elmes

2012

Arun K. Verma

2013

Thomas W. Haas
Michael H. Renfroe
Werner Wieland

2014

Richard S. Groover
D'Arcy P. Mays, III

2015

R. Edward Barker, Jr.
J. Ellis Bell
Ralph Eckerlin
Deborah A. O'Dell

2016

Thomas C. Devore
James C. Duchamp
Albert T. Sneden

2018

W. John Hayden
Conley K. McMullen
Deborah Neely-Fisher

2019

M. David Crosby

2021

Se Woong Jeong

2022

Robert B. Atkinson
Woodward S. Bousquet
Christopher J. Osgood

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